

THE IRON AGE

A Review of the Hardware, Iron and Steel.

Published every Thursday Morning by David Williams Co., 232-238 William St., New York.

Vol. LXIV: No. 3.

New York, Thursday, July 20, 1899.

\$4.50 a Year, including Postage.
Single Copies, Ten Cents.

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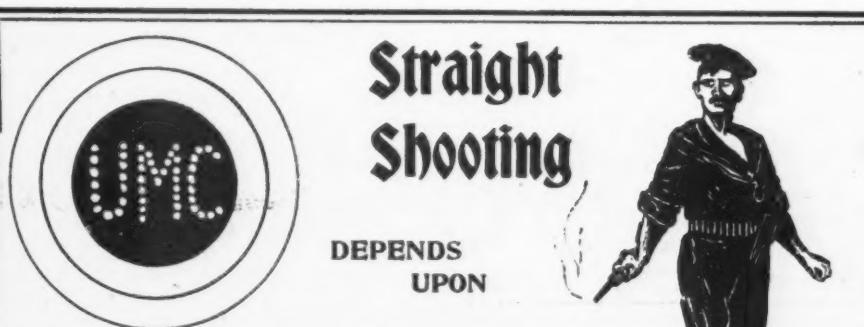
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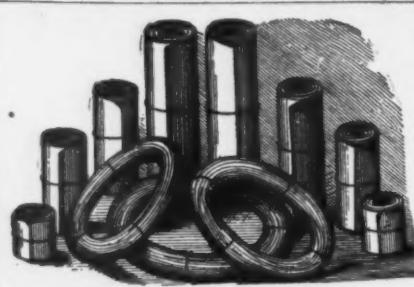
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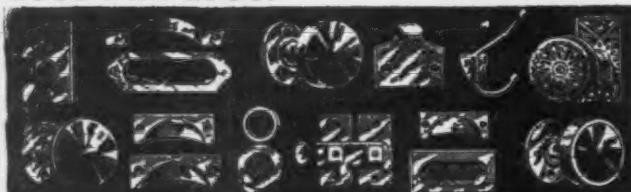
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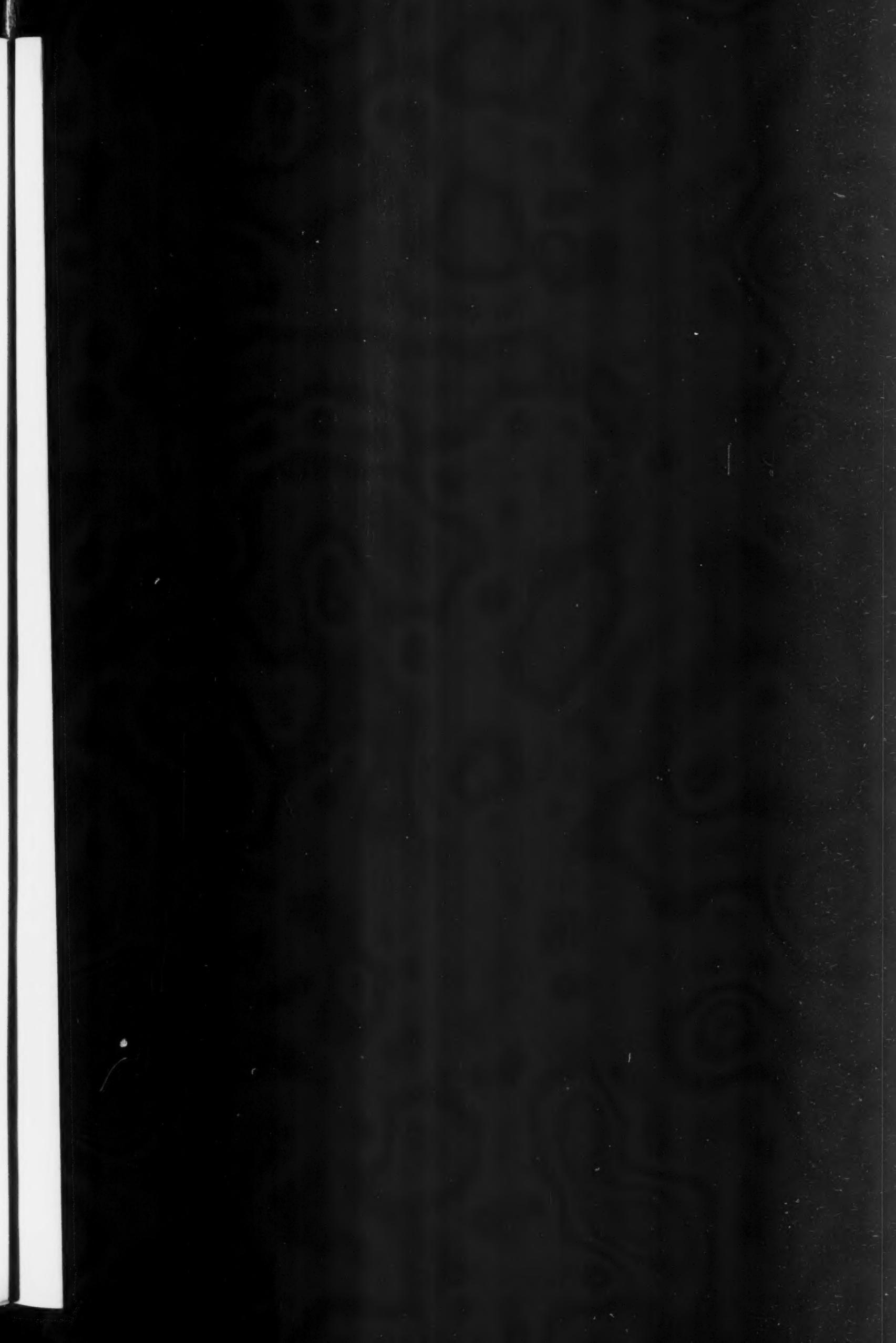
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THE IRON AGE.

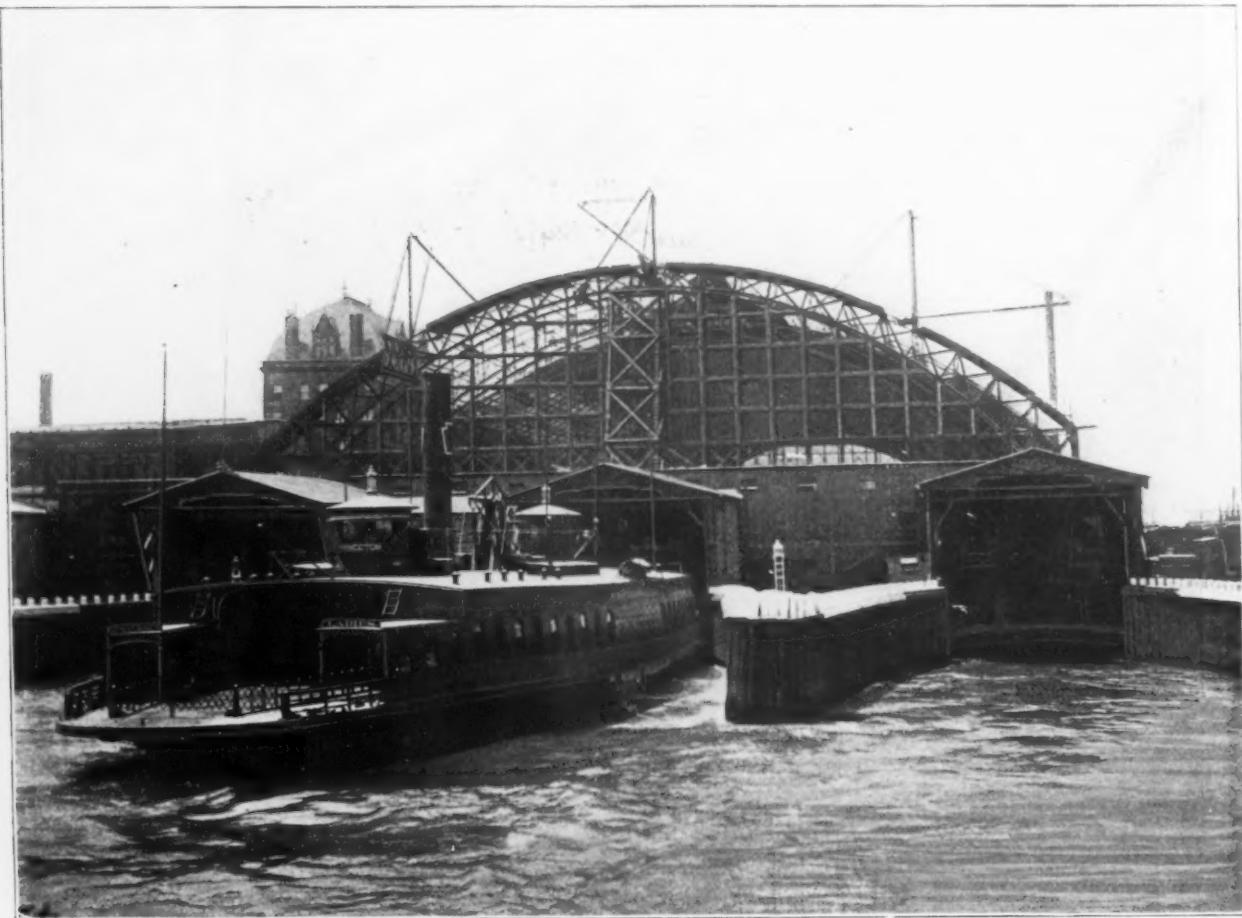
THURSDAY, JULY 20, 1899.

Moving a Great Steel Arch.

Some time since the Pennsylvania Railroad determined to make extensive alterations in its depot at the Jersey City terminus. These consisted in general of a considerable lengthening of the train shed, rearranging and altering the waiting rooms, and providing additional office accommodation. From an engineering standpoint the most interesting work was connected with the train shed extension. This was in the moving of a pair of steel arches which were united at a distance

The location of the arch and its relation to the rest of the depot will be understood from the plan, Fig. 3. The form of the arch is clearly brought out in Fig. 4, the front elevation looking from the river, and the elevation on a larger scale, Fig. 5.

One of the first operations was the placing of two 2-inch tie rods across the structure, as shown in Fig. 5, in order to prevent spreading of the ends during moving. Each end was then jacked up to free it from the foundation, and nests of rollers, shown in Fig. 7, were placed as indicated at the left hand in Fig. 5. A double



View of Jersey City Depot of Pennsylvania Railroad.

MOVING A GREAT STEEL ARCH.

of $14\frac{1}{2}$ feet, and which formed the end span of the original shed. This combination weighs 300 tons, has a span of 253 feet between the pin centers, and a center height of 92 feet $3\frac{1}{4}$ inches. It was moved bodily toward the river 125 feet, making the completed shed 777 feet long.

The work differed essentially from some engineering operations, such as replacing of bridges, by reason of the fact that time did not enter into the problem except as an economical factor. When we state that the entire passenger traffic of this road passed beneath this arch during the work it will be appreciated that safety and absolute freedom from any accident were the principal items. The work has now been finished, the end arch resting in its new position, intermediate arches filling the space between the old end of the shed and the new, with a new roof over the whole.

track had previously been constructed along the path to be followed by the arch. This consisted of ordinary 85-pound rails, between which $2\frac{1}{2}$ -inch steel rollers, 3 feet long, were placed. The end of each roller was formed with a collar, and a cage was provided in order to preserve the perfect alignment of the rollers and thereby prevent their slewing and the consequent deviation of the arch from the true line. Swung from the center of the arch was an A frame, built of heavy timbers and which is shown in both elevations in Figs. 5 and 6. Normally, this frame just cleared the station platform, its principal office being to prevent the toppling of the arch during moving or during high winds. After the arch had been moved a short distance the lower part of the frame was blocked up until the structure was to be moved further on its track. Carried on top of the arch were three derricks by means of

which the material of the new arches was put in place. After the arch had been cut free from the rest of the shed and the ends placed upon the rollers, it was pulled 3 feet away from the building, its top being braced back to the old roof. Horizontal timbers were then secured to the underside of the arch and projected beyond it a short distance, and by this means a false work was provided upon which the members of the new arch were constructed. After this new truss had been completed the end arch was pulled forward $14\frac{1}{2}$ feet and a second truss built in the same way, all of these trusses being arranged in pairs $14\frac{1}{2}$ feet apart. Next the arch was moved forward 46 feet and the intermediate span built in the same way.

One engine was placed upon the ground, as shown in Fig. 2, the other one being placed on the platform level at the opposite end of the arch. These engines were of

thorized to bid at auction sales for the lease of such lands in the peninsula of Apheron as are already known to be petroleum bearing. These measures, which virtually place British petroleum companies on an equal footing with Russian subjects engaged in the same industry, are regarded as a fresh proof of the anxiety of the Government to favor the investment of foreign capital in industrial enterprises in Russia.

An Important Change in Financial Conditions.

The financial editor of the *Chicago Tribune* discusses as follows one of the effects of the great industrial combinations:

The organization of trusts and industrial combinations is causing a revolution in financial conditions which the bankers in the smaller cities are realizing fully as much as bankers in the large reserve cities. In practically all of the recent company promotions the capital-

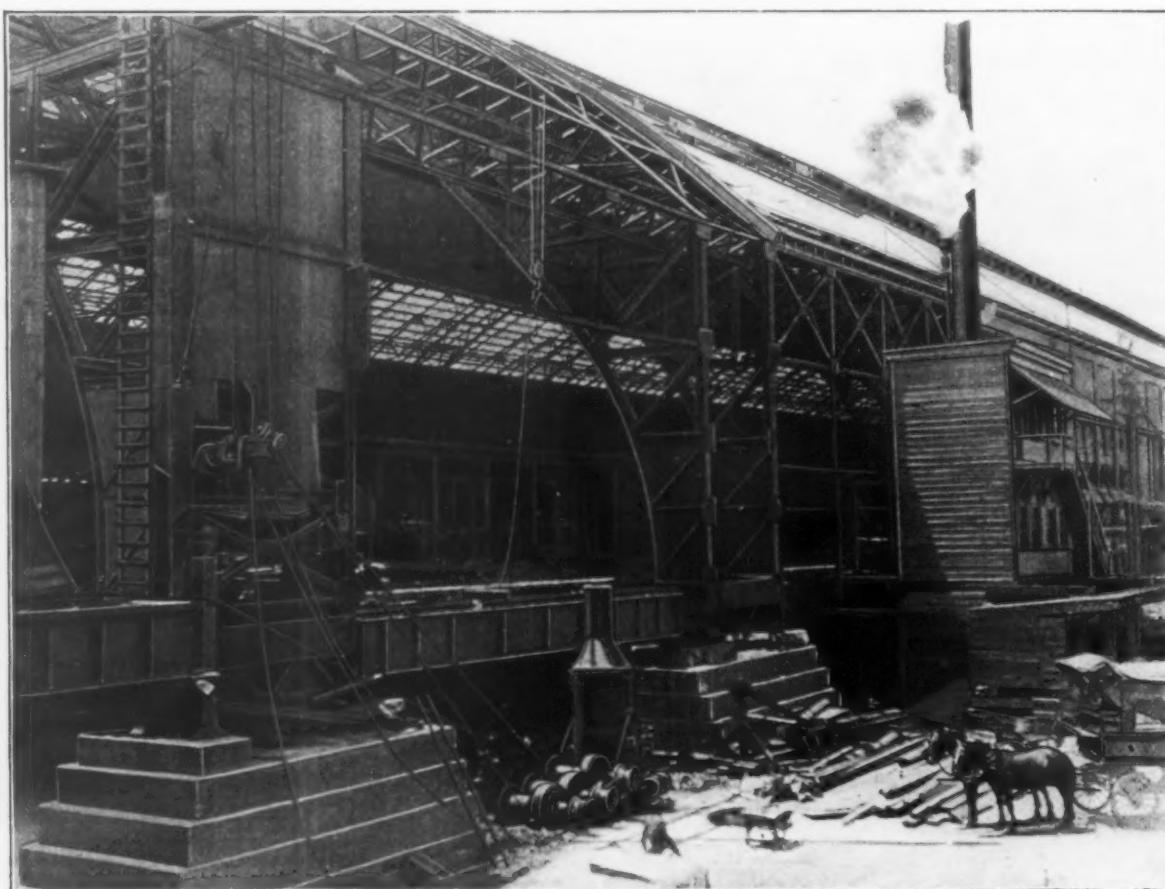


Fig. 2.—View Showing Location of North Engine.

MOVING A GREAT STEEL ARCH.

the ordinary hoisting type, the tackle being arranged to multiply the pull ten times. The arch was pulled at the rate of 5 to 10 feet a minute. The two tie rods mentioned as connecting the lower ends of the arch were made necessary by the removal of the permanent beams which united the ends beneath the tracks.

The plans were drawn in the office of the chief engineer of the road, William H. Brown, the work being carried on under the immediate supervision of the division engineer, L. H. Barker. The metal work was all prepared in the bridge shops of the company. During the entire work there was no unusual delay, and no accident even of the most trifling nature.

The Russian Government has granted to the British companies who last year received authority to acquire and work petroleum bearing lands in the Caucasus the right, not previously possessed by them, of prospecting for naphtha springs over lands belonging to the State in Transcaucasia in their own interest, and subject to the same conditions as Russian subjects. They are also au-

thorized to bid at auction sales for the lease of such lands in the peninsula of Apheron as are already known to be petroleum bearing. These measures, which virtually place British petroleum companies on an equal footing with Russian subjects engaged in the same industry, are regarded as a fresh proof of the anxiety of the Government to favor the investment of foreign capital in industrial enterprises in Russia.

his opportunities of doing business with the manufacturing concerns are slim unless in loans to stockholders of the various companies, and this will require in addition to the care in selection of individuals some exact knowledge as to the value of securities. Local bankers figure that a continuance of the combination movement will temporarily at least eliminate commercial paper from the market. Just what will develop when the new condition of affairs becomes settled and the new corporations find need for additional capital for extension of business or carrying stocks of goods is something to be decided several years later.

The Steel & Iron Metal Coating Company, West Chicago, Ill., are enjoying a most excellent trade for their

support, and about one fifth as strong as the bridges of long span and more ambitious appearance. He estimates that these 70,000,000 weak bridges cause a waste of track labor which amounts to over \$21,000,000 a year, and that on 1000 miles of railroad there is an annual loss of \$100,000 in hauling trains over these weak bridges, due to the additional resistance caused by their deflection.

The Chicago Railroad Clearing House.

Plans are stated to have matured for the establishment of the great railroad freight clearing house or exchange at Chicago which has been contemplated for several years. On a large tract of land in the southwestern part of the city an extensive system of tracks is to be built, with

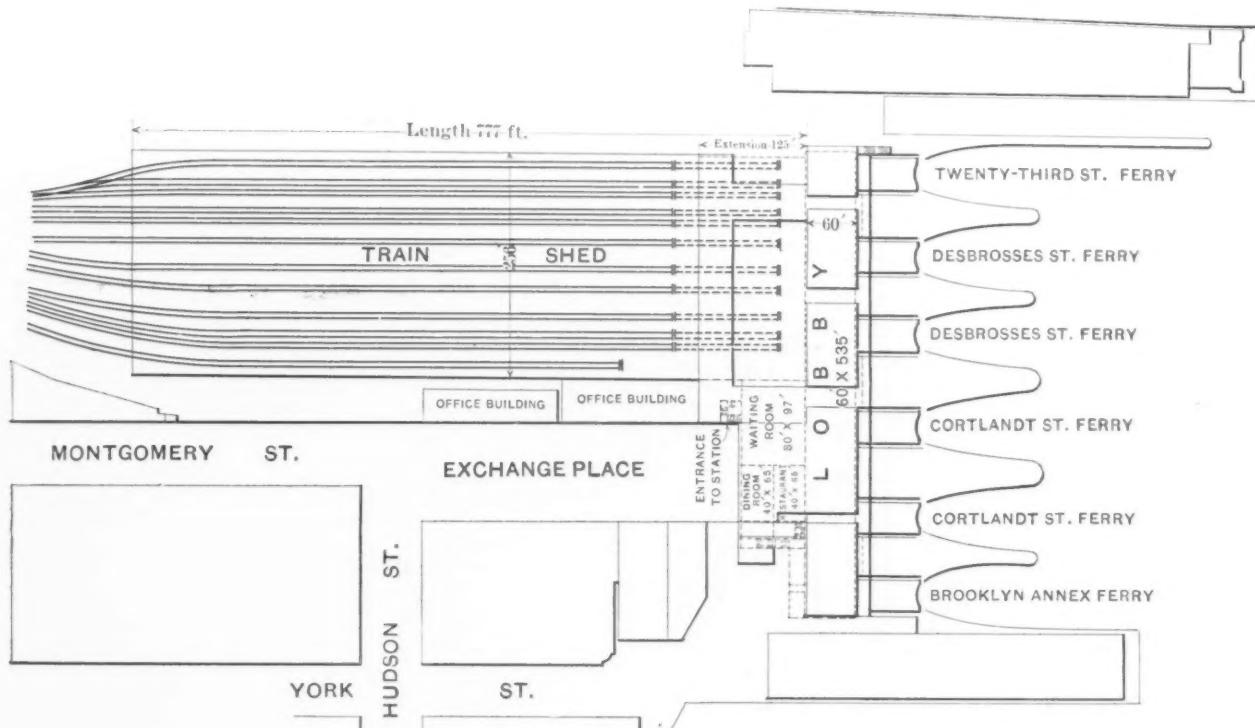


Fig. 3. - Plan of Depot.

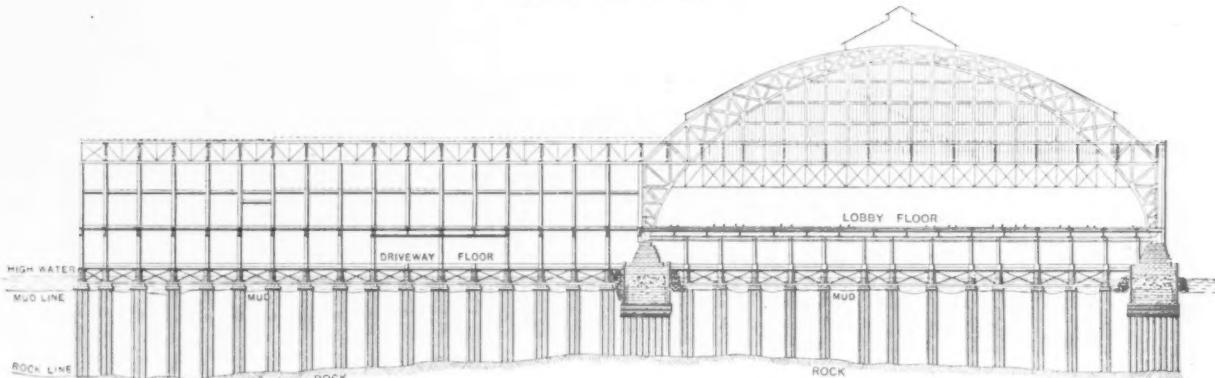


Fig. 4. - Elevation, Looking from River.

MOVING A GREAT STEEL ARCH.

aluminum coated sheet steel, which is rapidly replacing galvanized iron for many uses. Some very severe tests have been made of this metal. Particular attention is directed by the company to the following claims: It can be heated to a red heat without destroying its coating; sulphurous gases, brine, salt and acids do not affect it as readily as galvanized; it can be soldered with common solder and can be seamed and hammered down flat and then bent back straight without flaking. Large quantities of this metal have been sold to stove and range manufacturers, who are using it in many cases to replace copper in reservoirs.

A. Bonzano estimates that there are in the railroad track of the United States about 70,000,000 bridges, with an aggregate length of 11,000 miles. Obviously they are of pretty short span. These bridges, he says, are about one-third as strong as the rails, the ends of which they

which every Chicago railroad will be connected, thus making a common or union terminal. Freight coming into Chicago on one road to be shipped out on another will be hauled directly on the cars to this tract, where it can be transferred readily and for but a small part of the expense which would be required in the heart of the city. It is also an important part of the plan to establish an extensive system of warehouses for the purpose of caring for the freight of the large wholesale houses of Chicago. It is estimated that such a system would effect a large saving to the wholesale firms, which now spend large sums annually for truckage of their goods through the down town district. The corporation managing the scheme is the Chicago Transfer & Clearing Company.

Another accident, which occurred last week to the big timber dry dock at the Brooklyn Navy Yard, gives a further illustration of the undesirability of constructing any

more of this class of docks. The authorities say that it will take from one to two years to get the dock again into condition for service.

The Pottstown Bridge Company.—The Pottstown Bridge Company of Pottstown, Pa., have been organized with a capital stock of \$300,000, with officers as follows:

Mellon is a prominent banker of Pittsburgh and Henry G. Morse is president of the New York Shipbuilding Company. The company have sufficient orders booked to keep the works in operation for some months to come.

The steamship "Paris" of the American Line, which ran on the Manacles Rocks off the coast of Cornwall on

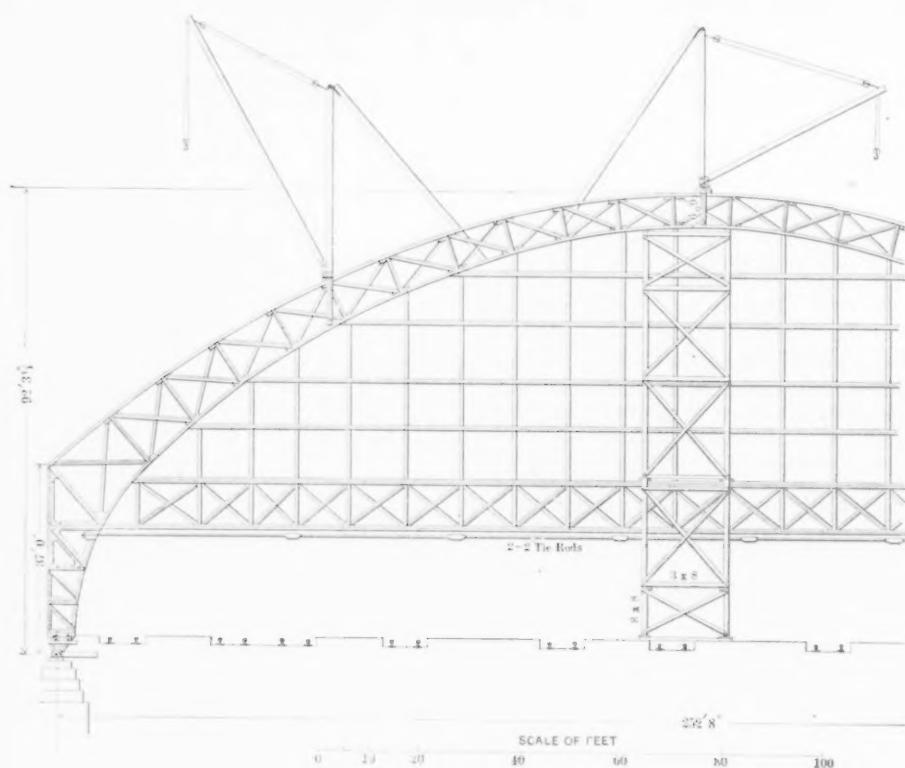


Fig. 5.

Elevations of End Arch.

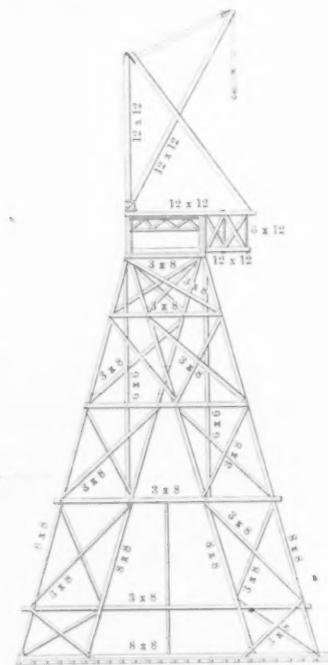


Fig. 6.

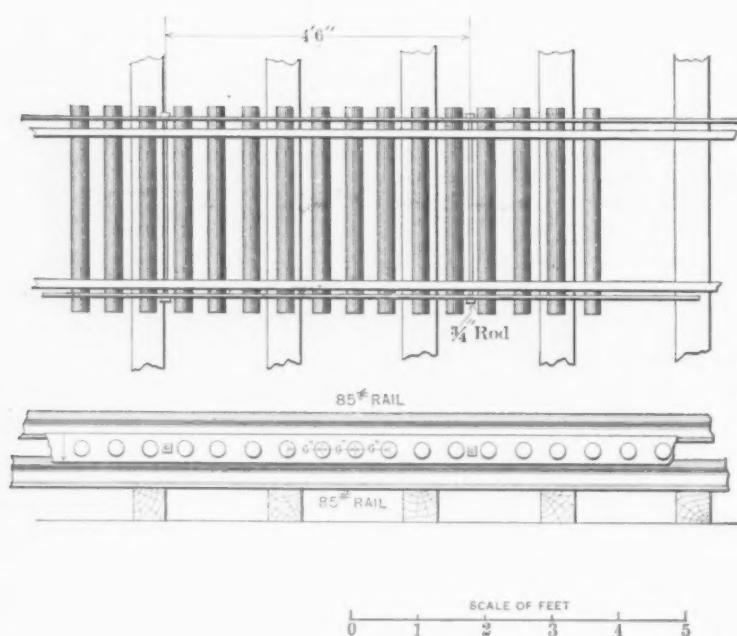


Fig. 7.—*Details of Rollers*

MOVING A GREAT STEEL ARCH.

President, Myron C. Wick who has been prominently identified with the National Steel Company; vice president and general manager, Francis H. Saylor, formerly president of the firm of Cofrode & Saylor and widely known from his long connection with the bridge and structural business; secretary and treasurer, Edwin McEwen, formerly secretary of the Union Iron & Steel Company at Youngstown. Of the remaining directors A. W.

May 21 and was subsequently abandoned by her owners to the underwriters, was floated on Tuesday and towed into Falmouth Harbor.

The Government expenditures during the fiscal year ended June 30, 1899, exceeded the receipts by \$88,875,990, while the receipts for the same period exceeded those of the previous fiscal year by \$11,705,664.

Iron Works and Other Industries in Chile.

Although the financial condition of the Republic of Chile during the past few years, or since the costly civil war of 1891, has been bad, its obligations abroad and at home have been punctually paid, and now that the fear of a war with Argentina has passed away there is every reason to believe that a rapid and permanent recovery in the state of the country has set in and that if liberal encouragement be given to manufacturing and agriculture the country will enter upon a period of almost unparalleled prosperity.

The Republic has a length of 2270 miles and a width varying from 40 to 200 miles. Its area is 293,970 square miles. But narrow as it is, wonderfully fertile is the greater part of its soil, which is in nowise overcrowded, the population now being but about 3,500,000, most of whom are progressive and energetic.

To take advantage of the fertility of the soil special attention is now being given by the Government to the importing of emigrants. Fertile land in the south and greatly reduced steamship passage rates are furnished those willing to devote their labor to agriculture.

Although Chile is noted, as compared with the other South and Central American republics, for its industries, the bulk of the manufactured goods she consumes are imported, and to keep in the country the large amount of money annually sent abroad for the purchase of these goods is the earnest desire of the Government.

Various commissions have been appointed to investigate the best plan to interest foreign capital in the upbuilding of the industries of the country from the raw materials found there, with the result that the Government now offers really liberal inducements for the establishment of certain industries, and will undoubtedly make offers for others ere long. It recently appropriated \$500,000 to foster the iron and steel enterprises, as it was demonstrated that a high grade of iron ore exists in abundance in the country, usually in favorable conditions for working, and at present there is not an iron works in Chile, although the consumption of iron and steel in the country amounts to over 40,000 tons annually.

The ore is generally pure and contains but little silica. The following percentages of iron have been shown on assay:

	Per cent iron.
El Tofo, Coquimbo	67.20
Curico, Illapel	62.13
Illapel	67.36
Tuillimari	58.80
Portezuelo	62.60

Ores from the central provinces contain 47 to 68.70 per cent. of iron and are at present used only as fluxes in silver smelting.

The deposits of manganese mined in the country are met with in the district between Valdivia in the south and Atacama in the north. The principal mines are those of Coquimbana and Negra, in the province of Coquimbo. Other less important mines are in operation, and as a rule the ore yields upward of 50 per cent. of manganese. The production of this in 1888 amounted to 25,000 tons, in 1890 to 48,750 tons, in 1893 it was 80,000 tons, and in 1895 over 100,000 tons.

The appropriation of the \$500,000 to foster the iron and steel industries of the country is the direct result of recommendations first made to the Government by the Chilean Mining Congress in 1896, as follows:

1. It is recommended that prompt acquisition be made by the State of all railways in important mining centers.

2. That metallurgical works utilizing the mineral products of the country be created under the patronage of the State.

3. That the Government nominate a commission of engineers to make a special study of the carboniferous deposits of the Republic, with a view of developing them.

In addition to the immense deposits of ore existing in the country there are also extensive forests, principally in the provinces of Llanganhue and Chiloe, and a carboniferous formation largely developed in the former province of Araucania.

It has, however, been proved that the lignite of which the deposits of combustible mineral of the country are composed will not give a coke that can be employed in the blast furnaces, and in consequence the iron industry based upon the exclusive use of raw materials of the country is not possible, even by the use of wood-charcoal, reserving the lignite for the work of casting iron or steel.

So it is seen that but two ways to take advantage of these opportunities for the establishment of iron works are possible—viz., by means of imported coke, or coke manufactured in the country from imported coal. Sr. Manuel F. Irarrazaval recently presented a proposition to the Chilean Congress for the establishment of large iron works based upon the manufacture of coke in Chile from Australian coal. The plans, &c., were drawn up

by the Wellmann-Seaver Engineering Company of the United States, and the estimate for the construction of the factory, having a capacity of 10,000 tons per year, consisting of a battery of 25 coke ovens, a blast furnace, Bessemer converters and open hearth furnaces, the heating furnaces and the mills necessary for the production of bars, galvanized sheets, rails, wire and nails, was \$1,000,000. Sr. Irarrazaval demands certain concessions from the Government, which so far he has been unable to obtain.

The two iron products mostly imported, and for which therefore local works would find the readiest sale, are pig iron and corrugated roofing sheets. In effect the 11,300 tons of iron annually imported corresponds to a daily output of about 30 tons, a quantity which it is possible to produce in 24 hours in two furnaces with wood charcoal. But it must be taken into consideration that Chile imports annually a considerable tonnage of iron water pipes, which could be cast in the country. It would therefore be advisable for the Government to grant a bounty of manufacture upon the casting, as well as upon iron and steel plates, which will no doubt likely be done.

Corrugated roofing sheets are largely imported, and the manufacture of these could profitably support another special industry, as their consumption corresponds (counting 300 working days in the year) to a production of about 36 tons per 24 hours. The manufacture of these sheets necessitates for their production a certain quantity of forge pig, which can very readily be produced in the furnaces with wood charcoal. The manufacture of ordinary sheets, bar iron and steel rails, and similar products, in view of the large annual importation, also appears to offer returns for capital invested. The average annual consumption of rails corresponds to a production of 55 tons per 24 hours. A Belgian company have recently come to the fore with a project to establish large works, using charcoal as fuel, but really active work has not yet been commenced by them. Given a heavy Government subsidy, cheap labor, cheap and pure ore, a fair demand for products, and an import duty imposed on imported goods of the same description, as is now the case in Chile, it would appear quite reasonable to suppose that the establishment and working of iron works would be a success. The Chilean Government realizes full well that on the successful working of iron works, or of all works engaged in the production of semi-manufactures, depends the success of the mechanical industries of the country, and so can be relied upon to render every possible assistance in order to insure that success.

Three large establishments for the supplying of railway equipment, machinery, rolling stock, boilers and engines, bridges, &c., are now in successful operation in and near Valparaiso. The foremost of these three firms is that of Lever, Murphy & Co., at Caleta Abarca, near Valparaiso and at Valparaiso. These works employ about 800 men and a horse-power of 155 in producing locomotives, bridges, boilers, iron structures and implements for the mining and nitrate of soda industries.

Another of these firms, Balfour, Lyon & Co., possess at Valparaiso works which are worthy of special notice. With the single exception of railway locomotives, which they do not construct, their class of manufactures is similar to that of Lever, Murphy & Co. They employ 700 men. Hardie & Co., the third one of these firms, confine themselves more especially to the construction of rolling stock for railroads and tramways, employing about 600 workmen. The State also owns and operates large shops for railroad equipment at Santiago, Valparaiso and Concepcion, where a number of the locomotives used on its lines are constructed. The first-class passenger coaches used on the State lines are all built in the workshops of the State, while only those of the second and third classes are constructed in the shops of the firms mentioned.

The most of the railway bridges furnished up to the present time have come from the works of Creusot (France).

Chile was the first country in South America to construct railroads, and the Government has always promoted through large subsidies and wise legislation the upbuilding of its system. At the beginning of the year 1896 the total length of the railroad lines in the Republic was 2080 miles, of which the State owned and operated 838 miles. Private companies owned 1242 miles, represented by 15 different lines. The Government at the time also had 331 miles under construction and being surveyed, most of which has since been completed. The leading line is the Grand Central, belonging to the State, which is composed of three divisions—from Valparaiso to Santiago and thence to Melipilla; from Santiago to Talca, from San Fernando to Alcones, and from Pelequen to Peumo; from Talca to Talcahuano, San Rosendo to Traiguén, Santa Fe to Los Angeles, and Robleria to Victoria, a total of 766 miles.

Work on the Transandine Railway, connecting Santa Rosa and Mendoza, which has been interrupted for a long time, has again been taken up and will be prosecuted vigorously by the Government. When the few re-

maining miles of this line shall be completed, the last link connecting the Atlantic and Pacific oceans, Buenos Aires on the former and Valparaiso on the latter, will have been forged. It is expected that the 622 miles separating the two ports named will be covered by express trains in 29 hours. Various railroad projects have recently come to the fore, and as the Government is willing to grant them subsidies the most of them will be built. The construction and extension of railroads necessitates the employment of large quantities of iron and steel, and this synopsis of the existing and projected railroads of the country is here given to more clearly point out the possible demand for the products of iron works.

A small nail factory, producing about 1500 kg. per day, is established in the country, in the province of Nuble, and has for several years been paying over 12 per cent. annual dividends.

It must not be inferred from the fact that iron works do not at present exist in Chile that the country is backward in industrial advancement, as its small population must be taken into consideration. An idea of its progress may be gained from the fact that in 1898, in the Department of Valparaiso, with a population of less than 250,000, there were 457 industrial establishments, which during the year employed over 15,000 operatives, with 201 steam engines having a total of 2086 horse-power. Among these establishments were gas works, breweries, sugar refineries, carriage and wagon works, sawmills, tanneries, &c., all employing imported machinery or machinery manufactured in the country from imported iron. Steam engines are imported annually to the value of \$250,000 and more, and the gas works, agricultural and nitrate of soda industries import about the same amount of implements and machinery. In the manufacture of which iron is the leading material.

Just previous to the closing of Congress, on February 2 last, several very useful measures were passed and have become law, among them being the following:

An act for the introduction free of duty for ten years of raw cotton and cotton weaving machinery.

An act to empower the President to spend \$50,000 on the survey of the line of telegraph from Punta Arenas to Puerto Moutt.

An act to empower the President to spend in 1899 the sum of \$500,000 on water supply for different towns.

An act to empower the President to spend \$1,160,000 in the extension of existing railways and the construction of new lines in the province of Atacama.

An act to empower the President to spend \$950,000 in the completion of the circular railway in Santiago.

The wealth of Chile undoubtedly lies in the development of its magnificent resources, and the Government have now come to a full realization of this fact. Its scanty population being insufficient as it is to cope with the task unaided, makes it apparent that those from abroad who seek there shall find. C. PAULO REI.

The National Tube Company.

The following is the official list of the newly organized National Tube Company:

National Tube Works Company McKeesport, Pa.
Riverside Iron Works, blast furnaces, rolling mills and pipe works, at Wheeling, W. Va.
United States Seamless Tube Company, Christy Park, Pa.
National Rolling Mills, McKeesport, Pa.
American Tube & Iron Company's plants at Youngstown, Ohio, and Middletown, Pa.
National Forge & Iron Company, McKeesport, Pa.
Pennsylvania Tube Works, Pittsburgh, Pa.
Boston Iron & Steel Company, McKeesport, Pa.
Allison Mfg. Company's tube mill at Philadelphia.
Monongahela Furnaces, McKeesport, Pa.
Morris Tasker & Co.'s Delaware iron plant, at New Castle, Del.
Republic Iron Works, Pittsburgh, Pa.
Oil Well Supply Company's Continental tube works and Elba Iron Works, at Pittsburgh, Pa.
National Galvanizing Works, Versailles, Pa.
Chester Pipe & Tube Company, Chester, Pa.
Monongahela Steel Works, McKeesport, Pa.
Hooven plant, at Norristown, Pa.
Oil City Tube Works, Oil City, Pa.
Syracuse Tube Works, Syracuse, N. Y.
Ohio Tube Company, at Warren, Ohio.
Western Tube Company, contract until 1902 and one-third stock ownership, Kewanee, Ill.
These works are now turning out about 1,100,000 tons of all classes of tubular goods of wrought iron and steel, embracing hundreds of varieties from 1-16 inch to 3 feet in diameter. This includes all grades of steam, gas and water pipe, hydraulic pipe, locomotive and stationary boiler and water tubes, casing, drive pipe and tubing for oil production and artesian wells, electric

conduit pipe, telephone and telegraph conduits, trolley poles, ammonia and gas cylinders, bottles, shrapnel shells and projectiles, hand rails, arch pipe and innumerable other varieties for hundreds of purposes. President Converse of the new company, in a statement, said:

While the National Tube Company thus practically control the domestic business, they also are a powerful factor in the other markets of the world. Year by year the American manufacturers have been invading new foreign fields and securing large business from the British and German manufacturers. The company supply the oil fields of Russia, Bulgaria, Java, Japan and Italy and Canada with tubular goods; the Scandinavian Peninsula, Holland, Germany, Mexico, Central and South America, China, India, Australia and other countries and colonies with large quantities of merchant pipe; also supply the South African gold and diamond fields with hydraulic and tubular supplies. It was but lately that the company shipped the famous order of 10 miles of 28-inch steel high pressure water line pipe to the Rand mines, earning three bonuses of 1000 pounds each for quick delivery. This order was taken in public competition with the manufacturers of the world.

The company also supply boiler tubes to all of the steam using countries of the world. Some of the electric railways in London are supplied by this company, and their trolley poles are seen on nearly every electric line in the world. The company are now supplying large quantities of high pressure gas and water lines, and have heavy contracts with the Standard Oil Company for the supply of high pressure oil lines and other tubular goods used in their oil production. Very high grade charcoal, iron and seamless locomotive boiler tubes are among the company's specialties, as also boilers for battle ships of the Government, notably the "Oregon," which used these tubes on its phenomenal voyage without having a single leakage or displacement.

The foreign offices of the company are located at Dock House, Billiter street, London.

The company give employment to 25,000 men, there being 8000 at their McKeesport mills alone.

Admiral Charles O'Neil, Chief of the Bureau of Ordnance of the Navy Department, Capt. Alexander H. McCormick, Commandant of the Washington Navy Yard, and Commander Edwin C. Pendleton, superintendent of the naval gun shops, at the Washington Navy Yard, have been made defendants in the Supreme Court of the District of Columbia in two suits filed by Sir W. G. Armstrong, Whitworth & Co., Limited, of Newcastle-upon-Tyne, the well-known English ordnance manufacturers. The declaration of the plaintiffs alleges that the Armstrong Company own the United States patent, dated February 21, 1888, on trunnion bearings for ordnance originally granted to Ralph T. Brankston, which it is charged has been infringed in the recent manufacture of naval ordnance at the Washington Navy Yard. The Armstrong Company ask for damages for \$20,000. Much interest attaches to the suit, owing to the fact that a prosecution of the Federal Government for the infringement of a patent owned by a foreign corporation is understood to be without precedent. A supplemental suit was also brought by the plaintiffs against Admiral O'Neil and Commander Pendleton for \$10,000, on practically the same grounds, Captain McCormick's name being omitted for technical purposes. The Government has 20 days in which to file an answer to the declaration, and it is understood will deny the allegation that the device now used in the construction of guns at the Washington Navy Yard is in any sense an infringement upon the so-called Brankston patent.

The Carnegie Steel Company, Limited, of Pittsburgh, have received a contract to build another armor plate safety-vault. It will be the largest vault of the kind in the world, and will be placed in the offices of the Continental Trust Company, at Baltimore. This makes the fourth vault of the kind built in this country. It will be made of Harveyized armor plates, weighing in the aggregate 190 tons, which is 105 tons heavier than the vault built for the Union Trust Company in Pittsburgh. The new vault will cover a floor space of 24 x 25 feet, with a height of 9 feet, inside measurement.

The famous firm of Patricio Milmo e Hijos of Monterey, Mexico, have been succeeded by the firm of Patricio Milmo e Hijos Sucs, the members being Eugenio Kelly, Alberto Radziwill, Sara V. Milmo de Kelly, Pudenciana V. Milmo de Radziwill, Leonor V. Milmo and Constantino de Tarnava, the latter having power of attorney.

Zinc, Copper and Lead is the title of a semi-monthly publication issued by G. C. Hume of 117 Chambers street, New York.

The Vollkommer Apparatus for Handling Large Plates.

Parties having to handle quantities of plates of any kind, as plate mill owners, glass manufacturers and dealers, boiler makers and many others, will be interested in the handling and conveying table, patents for which have been granted to Theo. J. Vollkommer, 229 North Fairmount avenue, Pittsburgh. The table was primarily designed to avoid the inconveniences incidental to the use of caster tables at shears, most of which, unless unusually well cared for, are frequently in bad shape, out of level, out of plumb and frequently minus a number

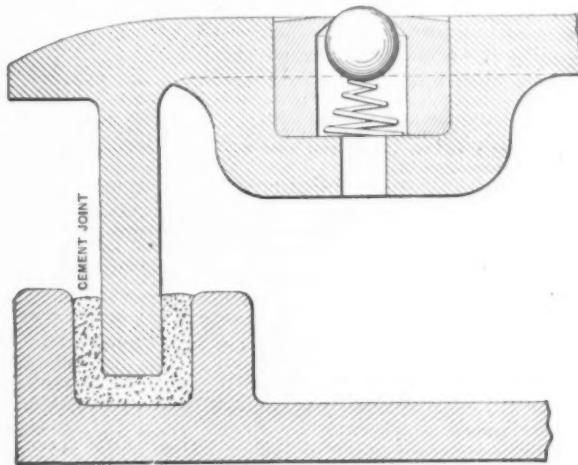


Fig. 1. - Detail of Valve and Joint of Box.

sible and, there being no movable parts, there is nothing to get out of order or to wear out.

In cases of intermittent running, or if the plates are very irregular in size, it becomes profitable to use a modification with self regulating air valves, as shown in Fig. 1, which is about half size. The valve ball is slightly pressed against the annular seat by a light spring. This seat is loosely inserted from the outside and can easily be removed or exchanged without interfering with the operation of the conveyor. A plate placed on the conveyor will press the valve balls downward, thus opening the valve openings, and it will then be floated on the layer of air escaping from the valves. Naturally only such holes will then be opened as are underneath the plate, and will effectively contribute to the forming of the air cushion, while all others remain closed. The cut, Fig. 2, shows a modification as applied to large plate shears, where plates of very great width and length are to be handled, and where the operators need access to every part of the table. Instead of using one continuous air box, of the required length of the conveyor, a number of sectional boxes are used and located in such a manner as to leave a passageway between the air boxes for the operator.

A modification of the pneumatic conveyor, 120 feet long, is at present in use at the Union works of the American Steel Hoop Company for conveying hoop iron, and it has proven so satisfactory that a second one, of 350 feet in length, is just being completed by the same company. Owing to the different nature of the material to be conveyed special difficulties had to be overcome and the form of the conveyor to be modified.

The results of this practical test leave no doubt as to the advantages of the plate conveyor. Mr. Vollkommer is at present making arrangements with a machine shop for the manufacture of the conveyor.

The Pittsburgh & Lake Erie Railroad have leased the Beaver & Ellwood Railroad for a period of 20 years, from

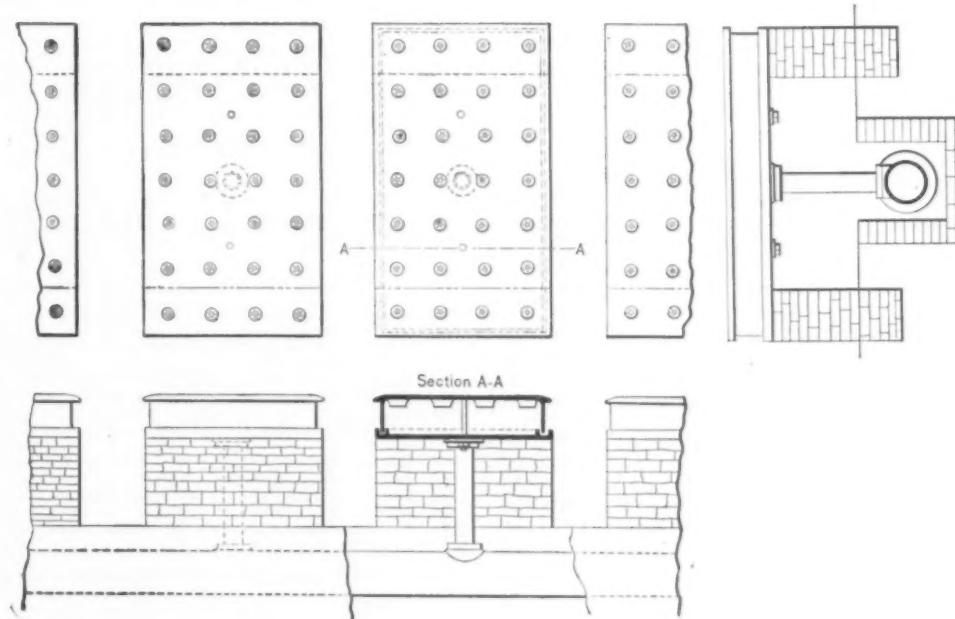


Fig. 2. - Plan and Elevations of Pneumatic Plate Conveyor.

THE VOLLMOMMER APPARATUS FOR HANDLING LARGE PLATES

of caster heads. To overcome these sources of annoyance the inventor uses a current of air, with several ounces of pressure, produced by a fan, or, for heavier plates, by a rotary blower. The simpler form, which will be most appreciated by the plate manufacturers, consists of a closed box of the dimensions of the table, the cover plate of which is smooth and straight and provided with a number of small holes of the proper size. Air is blown into the interior of the box, and by escaping through the holes in the cover plate lifts and holds in suspension, practically free from friction, on a thin elastic air cushion, without vibrations or shocks, any superimposed plates or articles. The slightest touch will give even a heavy plate any desired longitudinal travel, or rotary motion. If it is to be used as conveyor, the slightest inclination from the horizontal line will make the plates move toward the lower end of the conveyor by gravity. The construction is the simplest pos-

the Pittsburgh Company, a corporation controlling the interests at Ellwood, Pa. The lease is made at an arbitrary rental, and carries with it the control of the recently incorporated Ellwood Southern Railroad, which extends to the coal mines south of Ellwood City. The lease provides that all competing railroads shall be given access to factories of Ellwood during the continuance of the Lake Erie in possession. The Beaver & Ellwood Railroad was organized by Henry W. Hartman and his associates in the Pittsburgh Company, about five years ago, and has been one of the most important short lines in the Beaver Valley.

It is reported that the electric roads in Europe increased from 904 miles on January 1, 1897, to 1400 on January 1, 1898, and reached 1783 miles on January 1, 1899. These figures look small when compared with our own development.

The Japanese Tariff.

WASHINGTON, July 17, 1899.—A new commercial era in relations between Japan and the United States begins to-day with the taking effect of a new treaty of commerce and navigation which was negotiated in Washington nearly five years ago. The treaty marks the transition of Japan from the status of a semi-barbaric to a fully civilized nation, this Government relinquishing the principle of extraterritoriality in exchange for the opening up of the entire interior of Japan to American citizens seeking to do business with its people.

An incident of special importance, which adds to the significance of the assumption by Japan of her new status, is the institution of a new tariff, which recently took effect and under which a material reduction in duties is secured by those desiring to export their goods to Japan. At the time this new tariff was promulgated, but several months prior to its taking effect, the average rates as applying to the most important manufactures of metals, as cabled to the Japanese Legation here, were published in *The Iron Age*. Below will be found the full text of the metal schedules which have since come to hand.

The Japanese Minister, in explanation of the changes to be brought about by the new treaties which Japan has made not only with the United States, but with Great Britain, Germany, France, Russia, Austria, Italy, Spain, Portugal, Belgium, Holland, Denmark, Sweden and Norway, Switzerland and Peru, has issued a statement from the Legation, in part as follows:

"To understand the change it is necessary to look at the system under the old treaties. This was essentially based on two principles: First, that foreign residents in Japan shall enjoy the privileges of extraterritoriality—that is, they should be amenable to the laws and jurisdiction of the consul of their own country and not to Japanese jurisdiction; and, second, that foreign residents in Japan shall be confined to certain open ports, outside of which foreigners have not been able to reside, to own property, or to engage in trade.

"At the present time, if an American citizen commits an offense in Yokohama, he is tried, not in the Japanese court, but by an American Consul. The same is true as to an offense by a citizen of France, Great Britain and other countries. So in effect we have about 15 or 16 systems of courts in Japan, for the purpose of trying foreigners who commit offenses in Japan. Naturally, it is a most serious inconvenience. Furthermore, most of the Powers have claimed that Japanese laws were not binding upon foreigners. For instance, take our quarantine law. While it protected us as against our own people, yet there was no protection in the case of an infected foreign ship, as the claim was raised that Japanese law was not binding on foreigners. So we not only have had to deal with 15 or 16 foreign courts, but the Japanese laws have not been received in these courts. The only exception as to this was the United States, which recognized from the first the binding force of the Japanese law.

"One of the bad effects of this system was that foreign residents had entire immunity from taxation. The Japanese paid all the taxes, although foreigners enjoyed the same advantages which resulted from this taxation. Now all this has disappeared and the foreigners have the same privileges, as well as the same obligations, as the Japanese citizens, no more and no less. The first step in the new system is to put an end to the old fiction of extraterritoriality, by which foreign citizens were judged by different standards from Japanese."

"The second essential thing is the provision opening the entire interior of Japan to foreign residents and trade. Until now there have been only five treaty ports—Yokohama, Nagasaki, Kobe, Hakodate and Nigata. In these places foreigners had been able to live, to purchase property and to trade, but outside of these they could not even travel without a special permit. These five places are an insignificant part of Japan, and now the entire interior of the empire, with its populous cities and inviting fields of industry, is thrown open to foreign residents and trade. They may live anywhere, engage in any kind of business, and they will be assured of the same protection of life and property that is given to Japanese."

Following are the metal schedules which will now take effect at all ports, including those heretofore open to the foreign trade:

Group I.—Arms, Ammunitions, Clocks, Watches, Instruments, Apparatus, Tools and Machinery.

	Ad valorem rates of duty, per cent.
1. Arms and ammunitions, such as cannons, muskets, pistols, side arms, projectiles, cartridges, &c.	25
2. Balances, measuring scales and tapes.	10
5. Clocks, standing and hanging, and parts thereof.	20
7. Crucibles of all kinds.	10
8. Cutlery, not otherwise provided for.	20

10. Electric light apparatus or instruments and parts thereof.	10
11. Fire engines and parts thereof.	10
12. Implements and tools of farmers and mechanics, and parts thereof.	5
16. Locomotive engines and parts thereof.	10
17. Machinery or machines and engines of all kinds and parts thereof, not otherwise provided for.	10
20. Pumps and parts thereof.	10
21. Sewing machines and parts thereof.	10
23. Sporting guns and accessories.	25
24. Steam engines, boilers and parts thereof.	10
28. Typewriters.	10

Group IX.—Metals and Metal Manufactures.

202. Antimony, ingot and slab.	5
Brass:	
203. Bar, rod, plate and sheet.	10
204. Pipes and tubes.	10
205. Screws.	10
206. Brass, old, only fit for remanufacturing.	5
Copper:	
207. Ingot and slab.	5
208. Bar, rod, plate and sheet.	10
209. Nails.	10
210. Pipes and tubes.	10
211. Wire.	10
212. Copper coins and nickel coins.	5
213. Copper, old, only fit for remanufacturing.	5
214. German silver, plate, rod and wire.	10
Iron and mild steel:	
215. Pig and ingot.	5
216. Kettledge.	5
217. Bar, rod, hoop and band.	10
218. T. angle, and other similar manufactures.	10
219. Rails and bolts, nuts, chairs, dog spikes and fish plates thereof.	10
220. Sheet and plate, corrugated or otherwise.	10
221. Sheet, galvanized, corrugated or otherwise.	10
222. Plate, diagonal or checkered.	10
223. Pipes and tubes.	10
224. Nails, galvanized or otherwise, not otherwise provided for.	10
225. Screws, bolts and nuts, not otherwise provided for.	10
226. Tinned plate or sheet, plain or crystallized.	10
227. Wire and small rod, not exceeding $\frac{1}{4}$ inch in diameter, tinned or otherwise.	10
228. Wire, telegraph or galvanized.	10
229. Wire rope, galvanized or otherwise.	10
230. Wire rope, galvanized or otherwise, old.	5
231. Old hoop, old wire and all other old iron or mild steel, only fit for remanufacturing.	5
236. Nickel.	5
239. Solder of all kinds.	5
Steel, other than mild steel:	
240. Ingots.	5
241. Bar, rod, plate and sheet.	10
242. Pipes and tubes.	10
243. Wire and small rod, not exceeding $\frac{1}{4}$ inch in diameter.	10
244. Wire, paragon, for umbrella ribs.	10
245. Wire rope, galvanized or otherwise.	10
246. Old files and all other old steel, only fit for remanufacturing.	5
Yellow metal and Muntz metal:	
250. Sheet and plate.	10
251. Bar and rod.	10
252. Nails.	10
253. Pipes and tubes.	10
254. Yellow metal and Muntz metal, old, only fit for remanufacturing.	5
Zinc:	
255. Block, ingot and slab.	5
256. Sheet.	10
257. Sheet, old, and all other old zinc, only fit for remanufacturing.	5
258. Nails, screws, bolts and nuts of metal, not otherwise provided for.	10
259. Anchors and chain cables, new and old.	10
262. Chains, iron, not otherwise provided for.	15
263. Door locks, knobs, bolts, hinges, &c.	15
266. Gold and silver plated ware, not otherwise provided for.	25
267. Grates, fenders, stoves and fittings thereof.	20
268. Safes and cash boxes.	20
269. Umbrella ribs, and furniture thereof.	15
270. All other metals, not otherwise provided for.	5
271. All other manufactures of metal or metals, not otherwise provided for.	20

Group XVI.—Miscellaneous.

404. Asbestos in sheet or board.	10
406. Belting of leather, caoutchouc or canvas, and hose of caoutchouc or canvas, for machinery.	10
408. Blasting gelatine and other similar explosive compounds, including detonators and fuses.	15
413. Carriages, bicycles, tricycles and parts thereof.	25
414. Cars or carriages, railway passengers', and parts thereof.	10
415. Cars or wagons, railway freight, and parts thereof.	10
416. Cars or carriages, tramway, and parts thereof.	10
417. Cars or drays for conveyance of commodities.	10
423. Coal, and patent fuel coal or coal briquettes.	5
424. Coke.	5
430. Dynamite.	15
431. Emery sands.	5
432. Emery cloths and sandpaper.	5
433. Emery wheels, and grindstones of all kinds.	5
444. Gun cotton.	15
445. Gunpowder of all kinds.	15
460. Mica in sheet.	10
483. Submarine telegraphic cables and underground telegraphic lines or cables.	10
496. All articles, raw or unmanufactured, not herein enumerated.	10
497. All articles, manufactured wholly or in part, not herein enumerated.	20

W. L. C.

The property of the Elgin Sewing Machine & Bicycle Company at Elgin Ill., has been purchased by an association of Chicago, New York and Detroit capitalists, who propose to engage in the manufacture of automobiles. They claim to have an order for 1000 such vehicles for use in Chicago.

Relative Advantages of Different Kinds of Power.

The full title of a paper by Mr. Parker before the Institution of Civil Engineers was "The Relative Advantages of Different Kinds of Power for Tramways, Light Railways and Motor Car Traffic, both Heavy and Light." A portion of what he said is as follows:

Steam is quicker than horses, less costly for results, but has greater disadvantages—viz., much greater weight and occupying greater length of road, the emissions of carbonic acid, carbonic oxide, sulphurous acid, steam and smoke, practically into the dwellings along the route, and among the people, the unsightliness and noise—making its use in public streets a painful burden to the community, and, as experience shows, not to be borne when better means can be found. The objections leave little hope for the future of direct steam driven tramways.

The appended costs are taken carefully from practical workings (see table).

Compressed air is a more congenial agent, and has better prospects of success than steam if the two had to settle their differences alone. It is free from many objections compared with steam. There is little interference with the atmosphere. The small amount of direct firing makes it possible to use only one carriage for motor and passenger; water need not be carried. The total dead load to passenger is in its favor. It needs frequent stations for supplies, as the distance it is possible to run with one store of pressure is limited. Its friends are very active at present, and it is hoped we may hear their case and obtain some practical account of its working. It appears to have higher economy than can be obtained by steam direct. The author has no working data he can give.

Cable.—Endless cable, as a method for driving tramways, has high merits in many respects. It occupies a minimum length of road. Its speed is fair. It is free from nuisances of steam or horses, and it is handy. Its drawbacks are: Heavy initial outlay; its occupation of the street; the slot difficulty, of carrying sewer and other requirements in or across the street in which it is laid; the continued noise of the running rope under the streets causing, in some instances, considerable depreciation in value of property; the stoppage of the whole system upon the breaking of the cable, and the heavy costs attendant upon the system. Taking the statistics of installation, there are very few cable roads being put down now, and we may accept the verdict of the public that the cable has ceased to compete successfully with other methods. There are some tramways being driven by gas engines working on the car, but no reliable practical data is available. The verdict of passengers is that they are required to inhale considerable admixture of coal gas with the atmosphere in the neighborhood of the cars.

Electricity.—At the present time electricity is, by general accord, selected as the best method for driving tramways. In electricity we have a very flexible system which admits of great variation of powers being used at varying points on the same system. There is no nuisance, as with steam or horses. The minimum length of road occupied; speed can be low for intertown work and high for suburban traffic; cars are easily handled; energy is used efficiently; maintenance is not excessive; streets are not more occupied than simply by the pair of rails, so that taking up streets for laying sewers and pipes, or other needs, is not complicated. For lines where few trains are required electricity does not compare with steam, as the capital outlay for running a few trains is the same as for running a number. If we take a case, say, of two towns 50 miles apart, such as London and Brighton, which would support a continuous connection, and by the length of run put electricity under good conditions, electricity could give 15 minutes interval trains, run at 75 miles an hour, doing the distance in 40 minutes by trains of 100 tons, at 2½ pence per train mile, covering cost of power. Such a case shows how completely electricity takes the field under fair conditions, and the advantages are not only in point of power, cost and speed, but the track need not be so costly, as the weight can be evenly distributed throughout the train, the weight of the train being brought in for adhesion and traction. A 100-ton train would be equal in capacity for passengers to a steam train of 140 tons. The cost of maintenance of permanent way and risks would be much reduced. If we turn to a case where electricity is under its worst conditions in comparison with steam, we are able to refer to well matured data. The Liverpool Overhead Railway is such a case. It has been running for nearly seven years, and is in direct comparison with a number of similar lines worked by steam. A most important difference between electric motors and the steam cylinders when starting into motion is that in the electric motor no effort is obtained unless current is passing through the motor, and the torque is proportional to the quantity, while

steam gives its efforts and is liberated to exhaust only in proportion to motion.

Motor cars.—Steam was early in the field, but the requirements needed to make moderate success possible are only of modern achievement. The conditions of the vehicle and road make still further variation of the boiler, engine and condenser necessary before the steam motor car can be a standardized article of manufacture. With regard to gear, steering, brakes and wheels, there are openings for improvements and new applications. There are some good approximations to success of the steam type.

Oil cars.—Much has been done to render tolerable the close association of passengers with mechanical movements and rapid explosions forming the combination we call an oil car. Still much is needed with regard to safety from explosion and fire, reduction of vibration and efficient transmission. The prospect is that it may be practical, with reasonable first outlay, depreciation and cost of fuel, to run an oil car successfully for a much less cost than horses. The movement has brought about great improvements in the oil engine, but only light oils have been successfully used. Electricity is chiefly used as a means of igniting. Speeds of 1000 revolutions are obtained, or 500 explosions per minute.

Electricity.—In applying electricity to motor cars, we first met the question of weight of accumulators. This has, by improved motors, gear and accumulators, within very recent date been reduced to 1 horse-power hour delivered on to the car at about 56 pounds inclusive, so that 5 hundredweight of cells is sufficient to operate a car, as against 16 hundredweight two years ago. Motors, gearing and methods of steering have been much improved. The following data is one of the best examples I have had the opportunity of testing:

Weight of car, complete, without batteries.....	9 cwt.
Weight of batteries.....	5 cwt.
Total.....	14 cwt.
Total weight, with four passengers.....	20 cwt.
Discharge, on level, 12 ampères at 80 volts.....	9 miles per hour.
Approximate horse-power.....	1½
Safe distance	40 miles.
One motor, double reduction gear.....	1200 revolutions.

Operative Costs of Running One Car-Mile by the Different Systems Enumerated.

	Horse traction.	Steam traction.	Cable.	Electric overhead.	Liverpool Overhead Railway.
	d.	d.	d.	d.	d.
Drivers and conductors' wages...	2.5	3.5	2.67	2.49	
Generating station, including coal, oil, wages, waste, &c. ....	...	...	...	0.46	
Repairs: locomotive engines....	...	1.75	...	...
Motors....	...	...	0.81	...	
Machinery....	...	...	0.81	...	
Cars....	...	0.50	0.42	0.037	3.2
Harness, &c.	0.92	...	...	...
Fuel....	...	1.65	0.25	...	
Lighting....	0.02	0.33	0.04	0.02	
Horses, including forage, shoeing, attendance renewals, &c.	3.61	...	...	...
Management: general expenses.	0.73	1.26	0.18	0.15	0.416
Totals.....	7.78	8.99	4.40	3.157	4.316
Carrying capacity.....	26	54	54	30	140
Weight empty, tons.....	2.75	12	4.7	4.3	31

*Could not obtain reliable figures for generating costs.

The *Railroad Gazette* noted during the month of June orders for 5069 cars. Of these 1726 were box, furniture and refrigerator cars; 2531 were coal and gondola cars; 346 were flat cars; 375 were steel cars and 91 were passenger and street railroad cars. Orders for 118 locomotives were also noted, 9 of which were for foreign roads, and of the total of 118, 53 were for passenger, 52 for freight and 13 for switching service. The orders for locomotives show a slight reduction from those recorded in May, when 122 were ordered, but as deliveries are still put off until well in the fall, and even into next winter in some cases, there seems no lack of work for the locomotive builders. The car orders show a gain of about 200 over those placed in May. It is now possible to get somewhat earlier deliveries of cars and it is understood that a number of large orders are being considered by different roads.

Since December, 1898 12,596 steel cars have been ordered from the Pressed Steel Car Company of Pittsburgh for delivery this year and almost one-half of these have been delivered.

The Liggett Spring & Axle Company, Limited, Allegheny, Pa., and the Clinton Iron & Steel Company, South Side Pittsburgh, have prepared plans for large office buildings.

Fire Box Marine Boiler.

The S. Freeman & Sons Mfg. Company of Racine, Wis., built the boiler here illustrated for the steamer "Flyer" for the Columbia River & Puget Sound Navigation Company. It is of the locomotive marine type, proportioned for a working pressure of 180 pounds, and designed according to United States laws governing marine practice. The mean diameter of the shell is 9 feet, the fire box being 12 feet long and the tubes 13 feet.

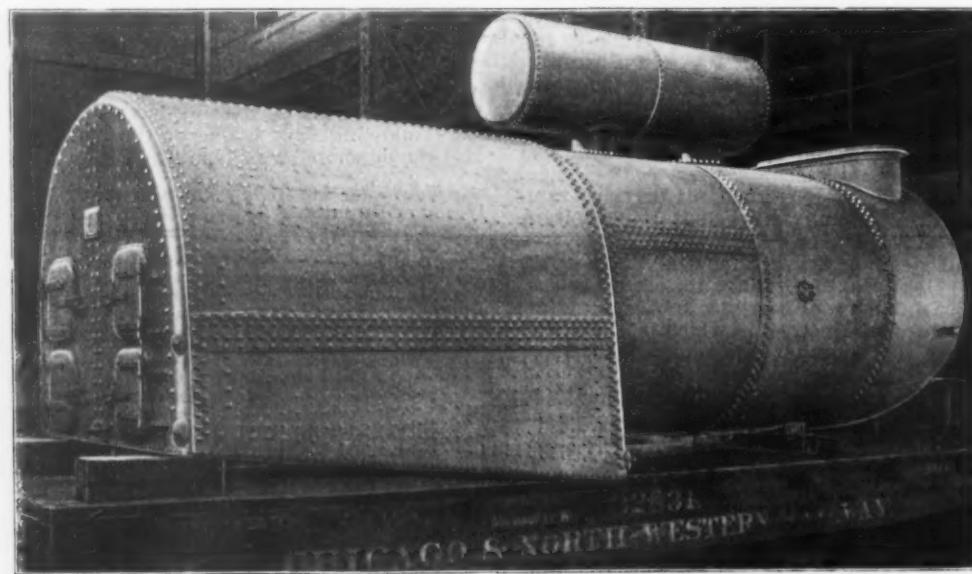
The materials used in the construction of the shell and outside fire box are of marine steel having a tensile strength of 60,000 pounds. The fire box proper is of fire box locomotive steel of 50,000 pounds tensile strength $\frac{3}{8}$ inch thick. The shell is 18 $\frac{1}{16}$ inch thick, made in two continuous courses, double riveted in the circumferential seams and triple butt strap riveted in the longitudinal seams. The rivets in the latter are spaced so as to give an efficiency of 82 per cent. of the solid plate. The tube sheet in the fire box and the tube sheet in the smoke box or back head are $\frac{1}{2}$ inch thick. All the flanging was done on a hydraulic machine to a radius of not less than $\frac{1}{2}$ inch on the inside. The wagon top, as shown in the section, Fig. 2, is 15 $\frac{1}{16}$ inch thick and extends 12 inches below the center of the shell. It is made in one course and is

The Iron Trade of the Cape Colony in 1898.

The Government of the Cape Colony has just published an advance copy on the statistical returns of last year. We learn from these figures that the imports of unmanufactured iron have remarkably decreased. In 1897 the importation was valued at \$630,740, but fell to \$440,000 in 1898. The principal items under this class imported in 1898 were: Bar, bolt and rod iron, \$130,000, almost entirely from the United Kingdom; hoop iron, \$24,600, chiefly from the United Kingdom only \$645 coming from the United States; pig iron, \$11,200, chiefly from Great Britain (\$5,500) and Germany (\$4,800); block, bar and other steel, \$180,000, almost entirely from Great Britain, only \$9400 worth coming from the States; steel plate and sheets, \$55,900, of which \$50,600 British and \$5,000 American.

A slight increase took place in the trade of corrugated sheets. The import value for 1898 was \$1,086,000, as against \$942,780 for the previous year. The greater part of these sheets are galvanized—viz., \$1,050,000, and the trade is monopolized by Great Britain. Of the total importation only \$2500 worth came from Germany, while the United States did not at all participate in this trade.

A larger increase took place in the importation of agricultural machinery, for which the figures for the last four



LOCOMOTIVE FIRE BOX MARINE BOILER

formed in two pieces with one butt strap joint on the top, having double covering straps on the inside and outside and being double riveted.

The screw stays are made of hollow staybolt iron, having only $\frac{1}{8}$ -inch hole. Their outside diameter is 1 inch in the body and $1\frac{1}{4}$ inches at each end. In constructing the boiler no upsetting of any of the staybolts was allowed. Each staybolt was made the right length for the place it was to occupy and no cutting off was permitted after it had been screwed in place. The heading was done with a reasonably light hammer and light blows so as not to upset the iron in the body. The radial stays for the crown sheet were made of iron 1 inch in diameter in the body and upset to $1\frac{1}{4}$ inches at each end. The stay braces for the front and back heads, as shown in the longitudinal section, have a sectional area of $1\frac{1}{2}$ inches and are held in place with two 1 inch rivets at each end.

There are 500 Allison charcoal iron tubes $2\frac{1}{2}$ inches outside diameter and 13 feet long after heading over. They are provided with copper ferrules at the fire box ends and are expanded and headed over with a pneumatic beading tool. The frame or mud ring of the fire box was forged in one continuous piece to the proper dimensions.

The steam drum is 40 inches in diameter and 11 feet over the head. The shell is $\frac{3}{8}$ inch thick and the head $\frac{5}{8}$ inch, double riveting being used throughout. The smoke box is made of 3-16 inch tank steel throughout. Each furnace has two steel doors with forged hinges and perforated cast iron baffle plates. The ash pan is made in two sections, one for each furnace, each being one piece of cast iron. The arrangement of the feed pipe will be understood from Fig. 2, A showing the main and donkey feeds, B the feed water circulator, C the suction pipe, beneath which is the steam heating circulator, and extending along the bottom of the boiler the branch suction pipes D E. When completed the boiler was tested to 270 pounds hydrostatic pressure.

years were as follows: 1895, \$225,700; 1896, \$262,600; 1897, \$271,800; 1898, \$352,100.

To the total imports of \$352,100 we contributed only \$95,200 worth, or less than 28 per cent., while the share of the United Kingdom amounted in value to \$245,000, or about 70 per cent. That the demand for agricultural machinery will continue to increase cannot be doubted. Although the country has much land that is arid there are vast tracts of good ground, and the Government is building dams to hold the overflow in the rainy season; artesian wells are also being bored. Present agricultural conditions are largely due to the fact that farmers depend entirely upon black labor. American farmers produce more on 160 acres of land than African farmers do on thousands, and in Africa a farmer is not satisfied with less than 1000 acres. Of this area he cultivates, say, 20 acres. The grass that could be used for cattle and sheep when feed is scarce is not cut. On the acres he cultivates he raises, say, oats, which are cut straw and all, and for which he finds a ready market.

There should be openings for mowing machines, corn cultivators, grinders and shellers, wheat binders, potato diggers, &c. A large number of small cheap plows, both steel and cast, cutting from 7 to 14 inches, have been sold, and there is a demand for a light gang plow, the two small plows held together by an iron frame, with iron handles and no wheels. Agricultural machinery and implements of all kinds are admitted free of duty.

The above figures relate only to agricultural machinery. Implements are classified separately, and their imports in 1898 amounted in value to \$440,000, of which \$191,200 were British, \$160,800 American and \$63,200 German.

The imports of mining machinery fell from \$5,450,000 in 1897 to \$8,800,000 in 1898, of which the greater part is as yet supplied by Great Britain, whose share amounted in value to \$2,620,000. It can, however, not be disputed that the United States trade in mining machinery has

made great strides in the Cape Colony. Thus our share in 1898 amounted to no less than \$1,342,000. Belgium supplied \$115,200 worth and Germany \$50,700 worth. Large quantities of mining machinery are now being imported into South Africa by way of Durban, Natal and Delagoa Bay.

The trade in all other industrial machinery also showed a decrease when compared with the two previous years. In 1898 the imports were valued at \$1,150,000, as against \$1,320,000 in 1897 and \$1,820,000 in 1896. Of the importation in 1898 \$540,000 worth was of British, \$80,200 of American, \$62,100 of German and \$16,700 worth of Belgian origin.

The importation of railway and tramway material fell from \$2,058,400 in 1897 to \$1,457,000 in 1898. This item is composed of the following three categories: 1. Rails, the imports of which in 1898 were \$500,200, of which \$400,000 was British, \$80,000 was American, \$14,000 was Belgian and \$3500 German. 2. Rolling stock, the imports of which in 1898 were \$245,000, of which \$145,000 was American and \$100,000 British. It is one of the few items in which we are ahead of the British and it is to be hoped that with the once established fame of the American "standard locomotives" our trade in this line will continue to increase. A watchful eye, however, should be kept upon the market. Japan, where our locomotives are considered the best has quite recently placed an order for 74 locomotives with the well-known German locomo-

"unenumerated hardware," of which \$2,940,000 was British, \$305,400 American and \$280,000 German.

Tools and implements, however, are not included in the general item of "hardware and cutlery." The imports were: Of tools, \$181,200, including \$105,000 British and \$65,700 American, and Kaffir hoes and picks, \$35,700, almost entirely from the United Kingdom. The demand for Kaffir hoes and picks is increasing every year. The cotton hoe used in the United States is similar. Our share in 1898 amounted to the unimportant item of \$345. The duty is 12 cents each.

Going into the details of minor articles we find that the imports of lamps, chandeliers and similar goods for 1898 amounted to \$201,600, chiefly supplied by Great Britain (\$126,000), Germany (\$48,100) and the United States (\$21,200).

Fire arms are divided into the following items: Double barrel guns, \$61,200, of which \$58,200 were British; single barrel guns, \$95,200, of which \$45,000 were British and \$45,000 German; pistols and revolvers, \$55,100, of which \$13,200 were British; percussion caps, \$4020; cartridges and cartridge cases, \$162,000, of which \$110,000 was of British make, \$42,100 German and \$42,500 American. Finally gun furniture, including parts of fire arms, \$12,400, almost entirely from England.

Iron standards, &c., for fencing were imported to the value of \$95,400, of which \$58,200 were of British, \$31,200 of Belgian and \$4120 of American origin. Typewriters,

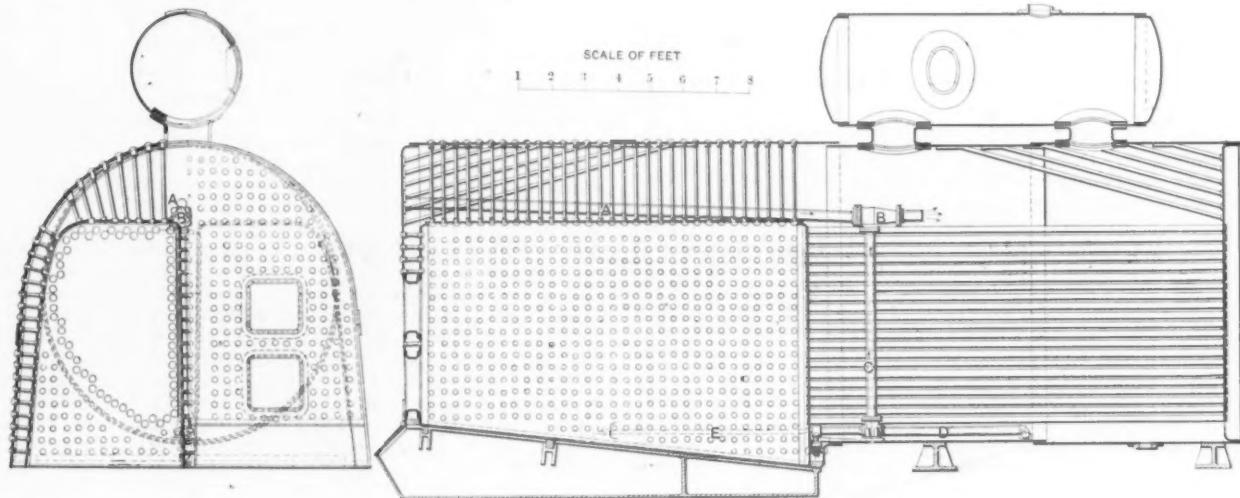


Fig. 2. Cross and Longitudinal Sections.

LOCOMOTIVE FIRE BOX MARINE BOILER

tive works, Krauss & Co., Actien Gesellschaft, of Munich, Bavaria, and it is said that the reason why this order went to Germany is largely to be traced to the fact that German and English agents in Japan have made the most strenuous efforts to convince the Japanese railway officials and engineers that the cost of maintaining American engines is relatively much higher than that of German or English locomotives.

The total imports of unenumerated railway materials was \$725,000, of which \$270,000 was British, \$210,000 was Australian and \$95,000 American.

Telegraph material also showed a heavy decrease—\$150,400 in 1897 and \$45,600 in 1898.

Quite a considerable increase, however, took place in the importation of iron pipes—\$752,000 in 1898, as against \$530,100 in 1897. Great Britain supplied \$555,700 and the United States \$126,200 worth.

Bicycle imports decreased in 1898 to \$857,200, as against \$1,153,000 in the previous year. Perhaps no country, in proportion to its white population, does a larger business in bicycles than does South Africa. The bicycle is used not only by the whites but also by others. The bicycles sell at about the same price as in the United States, with freight and duty added. Out of the total importation of last year only \$161,000 worth was of American origin, while the British imports amounted to \$657,000. Germany's share was \$24,600.

Hardware and cutlery imports are steadily increasing, which will be seen from the following figures of imports: 1895, \$3,400,000; 1896, \$3,720,000; 1897, \$3,692,000, and 1898, \$3,860,000. Out of this total (1898) \$90,100 represented axles and springs for carts, of which \$85,900 were of British and \$2,750 of American origin; \$360,700 worth represented fencing wire, of which \$140,000 was of British, \$135,000 of American, \$42,700 of German and \$27,500 of Belgian origin. The rest comes under the head of

\$63,400, almost equally divided between Great Britain and the United States. Tin and tinwares, \$121,000, of which only \$2600 came from the States. Zinc and zinc goods, \$51,200 almost entirely from Belgium (\$35,900) and Great Britain. Brass and copper goods, \$71,100, chiefly from Great Britain, Belgium and Germany, and lead and lead manufactures, \$98,900, almost entirely from Great Britain.

It may still be mentioned that a greater demand for windmills will soon be in evidence, since the different governments of South Africa are making ready, after many experiments, to present bills to the legislative bodies for the establishment of various systems of irrigation. A scheme is on foot to grant to parties drilling wells a certain bonus from the Government, in addition to the charge for the work to be paid by the land owner, provided the well produces water. The Government of Cape Colony has employed William Ham Hall, an American, as consulting hydraulic engineer, who has made an exhaustive survey. The English styles of windmills are heavy and cumbersome, and the manufacturers of the United States need only to push trade to win success.

The Shawinigan Water & Power Company, which is developing enormous power at the falls after which it is called, on the St. Maurice River, Quebec, are reported to have made a contract with the Pittsburgh Reduction Company for the disposal of a large quantity of the power produced. According to the programme announced the Reduction Company will establish at Shawinigan works for the manufacture of aluminum.

A large new crane was recently installed in the Duquesne Steel Works of the Carnegie Steel Company, Limited, in 37½ hours.

Railway Statistics for 1898.

The Interstate Commerce Commission's report of railway statistics for the year 1898, which has just been published, shows that 11 railroads went into receivers' hands, while 45 were taken out, and the mileage of receivership roads was reduced by 6116 miles operated and 5133 miles owned. There was a decrease in the capital stock of the roads in receivers' hands of \$221,927,239. The aggregate mileage of railways on June 30, 1898, was 247,532, an increase of 4088 miles. The total number of railway corporations in the United States was 2047. The total number of locomotives in service was 36,234, an increase of 248 over the previous year. The total of railway employees was 874,558, an increase of 51,082.

The total amount of railway capital outstanding on June 30, 1898, not including current liabilities, was \$10,818,554,631. Of the outstanding stock 66.26 per cent. paid no dividends. Of the stock paying dividends 6.63 per cent. paid from 1 to 4 per cent. There was 4.54 per cent. of the dividend paying stock that paid from 7 to 8 per cent. The total in dividends paid was \$96,152,889, being an average of 5.29 per cent. on all stock on which a dividend was declared.

The total number of passengers carried was 501,066,681, an increase of 11,621,483. The total number of tons of freight carried one mile per mile of line was 617,810, which was greater by 98,731 than the previous year. The gross earnings of the whole mileage was \$1,247,325,621, an increase of \$125,235,848.

The Diamond State Steel Company.

The officers of the Diamond State Steel Company of Wilmington, Del., are H. T. Wallace, president; L. A. Bower, vice-president (with special charge of the New York business, office at 29 Broadway); W. E. Boughton, treasurer (formerly with Federal Steel Company); W. H. Wallace, secretary, and E. B. Martin (formerly general superintendent of the Lukens Iron & Steel Company, Conestoga, Pa.), superintendent of the steel department. A contract has been let for acid and basic open hearth furnaces to furnish a daily capacity of 400 to 500 tons. This contract was placed with W. W. Lindsay & Co. of Philadelphia. The blooming mill and tables are being made by the Mesta Machine Company of Pittsburgh. The large reversing engine, direct connected, umbrella piston, is being made by Win. Tod & Co., Youngstown, Ohio. The electric charging machine, cars and charging boxes are being made by the Wellman-Seaver Engineering Company of Cleveland, Ohio. All of these contracts are based upon such deliveries as shall put the plant in shape to begin running in January next. Julian Kennedy of Pittsburgh is acting for the company in the construction of their new works, in the capacity of consulting engineer, and all the plans are subject to his supervision and approval.

The present works of the company are employed to their fullest capacity, with business several months ahead. Some of the largest and most conservative customers of the company have recently placed orders with them for material at present market prices, for delivery as far ahead as June of next year. The company have upward of 1300 employees at this time, and on July 24 an advance in wages takes place, at which time puddling will be made \$3.75 per gross ton, and other mill wages in proportion, this being the fifth advance the company have made in wages during the past few months. It is not the object of the company to abandon or do away with any of the departments of the mills or shops which have been conducted by the Diamond State Iron Company, but rather to add the steel plant, and in connection with it to enlarge and develop all of the departments of the old business.

The Anniston Rolling Mill Company at Anniston, Ala., signed the Amalgamated Association scale last week.

A lodge of the Amalgamated Association has been organized at the Atlantic Works of the American Steel Hoop Company at Sharon, Pa. The puddling department of this plant resumed operations last week after an idleness of about six years.

The Bellefonte Iron Company are repairing their blast furnace at Bellefonte, Pa., and will blow it in this month. It has a daily capacity of about 100 tons.

Jones & Laughlins, Limited, have recently bought a very large acreage of coal property near Coal Center, Pa. The tracts secured embrace over 3000 acres of choice coal lands.

The Opening Up of Siberia.

Some interesting facts with respect to Siberia are to be found in a lecture recently delivered to the Royal Artillery Institution by Lieut.-Col. W. H. H. Waters. The total area of Siberia proper is estimated at 5,000,000 square miles, and its population at 10,000,000. An immense extent of country is suitable for wheat growing and the mineral wealth is also enormous. The development of the country has up to the present been retarded by the lack of facilities for transport. Until the Trans-Siberian Railway was started the only great artery of communication was the "Great Siberian Road," which ran from the Russian boundary on the west and terminated at Stryetensk. Recruits drawn from Tobolsk for service at Vladivostock used to march the whole distance from Tobolsk to Stryetensk, a distance of 2767 miles, and proceed thence to their ultimate destination by barges. The difficulties of the march were increased by the intense cold of winter, which averages 45 degrees F. of frost. Transport rates were consequently enormously high. The freight to Europe from Chita, in the heart of Siberia, was no less than \$150 per ton. The need for the railway was thus evident and though excellent offers were made by a French syndicate for the construction and working of such a line the imperial authorities decided to do the work themselves. As the line was estimated to cost some \$20,000,000 the authorities quite naturally were dissatisfied with having its eastern terminus at Vladivostock, which is occasionally blocked by ice for several weeks during winter, and further by carrying the line through Manchuria a saving of some hundreds of miles in length was also possible. By an all-Russian route the line between Chelyabinsk, its western terminus in the Urals, and Vladivostock would have been 4700 miles long, and the temptation to reduce this by the Manchurian deviation is obvious. The trains over the completed portion run very slowly, the average speed being but 12 miles an hour. As matters stand, however, this speed, low as it is, marks an immense step in advance as compared with that of the methods of transport previously available. Though receiving every aid from the Russian officials, Colonel Waters states that to travel by sleigh from Krasnoyarsk to Irkutsk, a distance of 693 miles, took him 153 hours, though short stops for evening and morning meals only were made. Other travelers were much less fortunate, one man having been nine days covering 310 miles, though his business was pressing. As regards the future Colonel Waters holds that Siberia offers a most favorable field for British capitalists, who will be welcomed by the Russian authorities. A young man starting with very scanty capital could, he thinks, be worth \$500,000 within fifteen years.

The Sloss Iron & Steel Company to Reorganize.

With a view of taking in several properties in Northern Alabama work is under way toward the reorganization of the Sloss Iron & Steel Company of Birmingham, Ala. This company are at present capitalized at \$5,000,000. It is said that the properties to be placed under one control are the Gulf Coal & Coke Company, the Lady Ensley Furnace and the Hattie Ensley Furnace of Sheffield, Ala., and the Philadelphia Furnace at Florence, Ala. It is said that the name, Sloss Iron & Steel Company, will be retained, and it is also maintained that the Alabama Coal & Iron Company will not be consolidated with the new company or have any connection whatever. A report that Archer Brown of Rogers, Brown & Co. was to become general manager of the Sloss Company is emphatically denied by Mr. Brown.

The total losses entailed by the recent flood in the Brazos Valley district of Texas are placed at fully \$10,000,000. The land bordering on the Brazos River is the most productive in the State and large quantities of cotton, corn, sugar cane and other crops are grown on it. The heaviest loss has been suffered by the cotton planters, although the loss of corn has also been great.

Reports from the West indicate that the movement of grain in the present year will be of unusually large proportions. The wheat receipts since January 1 have been larger than any year since 1891. Estimates place the total wheat movement at 90,000,000 bushels for the six months ended June 30, against an average of 60,000,000 bushels for the preceding seven years.

The July report of the Statistician of the United States Department of Agriculture shows an estimated reduction of 8,000,000 bushels of wheat as compared with the June 1 estimate. The outlook, however, is still for a crop that has only been twice before exceeded. The returns indicate a corn yield of about 2,000,000,000 bushels and the oat crop gives good promise.

Six Months' Business Failures.

The record of failures for the first half of 1899, as compiled by *Dun's Review*, gives remarkable testimony of the improvement which has taken place in business conditions throughout the country during the current year. The failures for the six months ended June 30, 1899 were 4884 in number, with aggregate liabilities of \$49,664,661, as compared with 6718 failures during the corresponding period of 1898, and 6821 in 1897, with \$71,246,783 and \$81,692,787 of liabilities respectively. Of this year's failures, 31 were banking, with liabilities of \$7,601,728, of which over two-thirds was contributed

only two in trading for \$224,088, less than a tenth of the smallest previous year, and only 15 in all for \$2,417,180, from a fifth to a tenth of previous years.

The decrease compared with last year is remarkably large in the more important districts. In New York it is 72.5 per cent.; in Pennsylvania, nearly 60 per cent.; in Ohio, 73.5 per cent.; in Michigan, Wisconsin, Iowa and several smaller States, over 50 per cent.; in California, nearly 60 per cent., and nearly as much in Massachusetts. In only three States the failures were not smaller than a year ago—namely, North Dakota, with an increase of \$2000; Arkansas, \$64,000, and Louisiana, \$500,000. In amount of decrease, the Middle States rank first and the Central States second, but in New England the failures were not half as large as last year, nor were they in the Southwest, and in the entire Northwest they were little more than half.

The International Acetylene Association.

The annual meeting of the International Acetylene Association, held July 11 at the Great Northern Hotel, Chicago, was well attended, and both sessions were intensely interesting. The scope of the association was extended to include, in addition to manufacturers of gas generators and carbide, manufacturers of burners and other acetylene supplies. Arrangement was also made to accommodate individual scientists, inventors, agents, salesmen and others interested in the development of acetylene illumination by providing an associate membership. A plan was perfected for the establishment of local chapters in which members are to meet socially at convenient locations, more or less frequently, and by conference and comparison forward the interests of the craft. The following are the officers for current period:

President, Geo. Landis Wilson, representing F. Cortez Wilson & Co., Chicago.

Vice-President, W. T. Reynolds of the Draper Mfg. & Gas Company, Dana, Ind.

Secretary-Treasurer, J. B. Carroll of Chicago.

Directors: Henry W. Gazell, president of the Harris Mfg. Company, Cleveland, Ohio; J. N. Goldbacker of the Bournonville Acetylene Generator Company, New York, N. Y.; Benj. Briscoe, president of the Detroit Galvanizing Works, Detroit, Mich.; Wm. Finkler, representing the Niagara Falls Acetylene Gas Machine Company, Niagara Falls, N. Y.

The following were appointed chairmen of the important committees: Transportation, Henry Giessel of H. Giessel & Co., Chicago. Complaints, J. P. Holmes of Holmes Acetylene Company, Chicago. Insurance, J. M. Morehead of Union Carbide Company, New York and Chicago.

The opinion was general that the business was on the eve of a very prosperous season, although the problems to be faced and overcome are such that establishments of small capital or meager experience are almost certain to meet disaster unless they feel their way very carefully.

Heavy Swing Cutting Off Saw.

The heavy swing cutting off saw built by J. A. Fay & Co. of Cincinnati, Ohio, has a frame cast in one piece, with cored section. A heavy self oiling saw arbor, with expansion bushing, is attached to the lower end of the vibrating frame which is hung upon the bearings of the countershaft overhead. The arbor is 1 $\frac{1}{8}$ inches in diameter where the saw is received, and will carry a saw up to 48 inches in diameter. The frame is moved forward to cut off the material and is returned by means of a counterweight. The table for the lumber to rest on can be made of any height or dimensions desired. The arbor is provided with a saw shield for the protection of the operator, on which is a handle for moving it forward.

Rapid progress is being made in the construction of the natural gas holder of the Allegheny Heating Company, now being built in Lower Allegheny, Pa., and the largest of the kind ever built in America. The capacity of the holder will be 5,000,000 cubic feet of gas, the object being to store gas for use in excessive cold weather. The holder is 21 $\frac{1}{2}$ feet in height and 198 feet in diameter. It consists of three lifts and is set in a steel tank. The bottom is made of 1 $\frac{1}{2}$ inch plates. The holder is being built by the Ritter-Conley Mfg. Company of Pittsburgh.

A considerable number of women are still engaged in iron mines and in iron and steel works in Germany, the total number so employed, according to the most recent returns, being 3739. Of this figure, 1283 were employed in iron mines, 852 at blast furnaces, 537 at foundries, 623 at forges and 444 at steel works.



HEAVY SWING CUTTING OFF SAW.

by one railway investment company. The commercial failures, therefore, were 4853, with liabilities of \$42,062,933, of which \$16,723,353 were manufacturing and \$23,011,364 were trading. In the first half of last year the commercial failures involved liabilities of \$67,444,639. The decrease in the first quarter of the year was considered remarkable, but it was only 16 per cent., whereas in the second quarter the decrease, compared with last year, was nearly 60 per cent.

In the second quarter, the failures were the smallest ever reported in that quarter in the 25 years during which records have been kept. The average liabilities per failure, \$7165, is the smallest ever known in any quarter, and the ratio of defaulted liabilities to solvent exchanges, 62 cents per \$1000, is also the smallest ever known. In 10 out of 14 branches of manufacturing, failures were smaller than in the same quarter of four of the previous five years, and in 13 out of 14 trading branches. The large failures for \$100,000 or more were

Pneumatic Propulsion.

The following article from the *London Engineer* presents some of the early attempts to utilize air for conveying:

Prior to the advent of steam worked railways in 1830, in which year the Liverpool and Manchester line was opened, inventors were hard at work in their endeavors to perfect the atmospheric system of railway, as it was then called, and a stimulus was given to their labors by the unfortunate death of Mr. Huskisson—the first railway victim—upon that occasion. One example of the prior application of the atmospheric principle to the propulsion of railway trains was that by John Vallance of Brighton in 1827.

It is now nearly two centuries and a half since Papin, in the year 1654, suggested the employment of atmospheric pressure against a vacuum as a motive power. The suggestion, however, does not appear to have been acted upon nor the principle applied to any practical purpose until it was embodied in Newcomen's engine, which, of course, was not for purposes of locomotion. That application was left for later times to develop; and, according to the *British and Foreign Review* of April, 1844, the idea of applying atmospheric power for the propulsion of land carriages first occurred in a definite form in 1805 to Mr. Taylor of Manchester, the inventor of the first power loom. Although that gentleman conceived the idea, he does not appear to have possessed sufficient ingenuity to carry it out in practice. He, however, submitted the notion to his friends, Duckworth and Clegg, two engineers of the time, and although they were all three of opinion that the idea was capable of realization, they found that the accomplishment of their object was so beset with difficulties that they eventually allowed the matter to drop. Taylor's scheme only extended to the conveyance of letters and dispatches. He suggested that a tube, large enough to contain a parcel, should be laid down from one town to another, a stationary engine being employed at either end to exhaust the tube.

The subject was then taken up by George Medhurst, a London engineer, who, in 1810, published a pamphlet, in which he described "A New Method of Conveying Goods and Letters by Air." Two years later he published his calculations and remarks on the practicability of his scheme. By the year 1827 Medhurst appears to have further developed his ideas, for in a pamphlet which he then published he describes a system in which he employed a tube through which he drove a carriage by air pressure in one direction and drew it by vacuum in the other. A further development of the system was the employment of a tube 24 inches in diameter, within which worked a piston with a piston rod passing upward through a longitudinal channel and connected to a carriage running on rails. The piston was to be driven by air pressure, and the channel was to have a water seal. His third suggestion was a combination of the two methods, goods being conveyed within the tube and passengers in a carriage outside it. Yet another method proposed by Medhurst was to have an iron air tube of square section, 4 feet in area, fitted with a longitudinal flap valve on the top, through which the arm of the piston projected, and was attached to a carriage running upon the ordinary roadway without any rails. By this modification goods and passengers were to be conveyed "at the rate of a mile a minute, or 60 miles an hour, and without any obstruction, except at times contrary winds, which may retard its progress, and heavy snow, which may obstruct it." However wild Mr. Medhurst's system may appear, to him must be given the credit of originating the longitudinal valve on the tube, a principle which underlies the inventions of nearly all others who subsequently sought to solve the problem of pneumatic propulsion with external carriages.

Previously to the appearance of Medhurst's last pamphlet, Mr. Vallance had, in 1824, taken out a patent for his system of locomotion by atmospheric pressure. This was only a modification of Medhurst's first suggestion of a tube through which a carriage was to be propelled and drawn alternately by means of a plenum and a vacuum. The working model of this railway, 150 feet in length and 8 feet in diameter, appears to have been the extent of the application of the principle by Mr. Vallance. In 1834 Henry Pinkus appeared upon the scene with a patent for a pneumatic railway, which was on the same principle as Medhurst's fourth modification, with the exception that Pinkus proposed to use a circular instead of a square tube, and to employ a hemp and tallow rope for his continuous valve. The rope valve was to be opened by a small friction roller passing under it, and closed by another passing over it, both being attached to the carriage above it. In practice, however, it was found that on employing a vacuum the rope was forced into the tube by the external pressure of the atmosphere, the vacuum being thus destroyed.

The question now was to devise a valve which should neither be blown out under internal, nor be forced in under external pressure. And here Mr. Clegg took up the running, and in 1839 obtained a patent for a continuous valve having a leather hinge, and working in a trough containing a fatty composition which was solid at the ordinary temperature, but which was easily melted by the application of warmth. This, of course, involved the heating of the composition in order to seal the valve in the rear of the opener as the carriage passed onward, and this was to be effected by a tubular heater containing burning charcoal. Besides the modification of the valve, Mr. Clegg, in conjunction with Mr. Samuda, improved the armature, which, instead of proceeding vertically from the piston to the carriage, as in Pinkus's patent, passed through the valve at a very low angle—nearly horizontally, in fact—which caused the valve to be only very slightly opened. The details of the piston were also materially modified by the same inventors, whose names stand out very prominently in the history of the atmospheric railway.

So far the respective inventors only availed themselves mainly of the mechanical properties of the atmosphere resulting from its action on a piston working in a tube and connected, through a continuous valve, with an external carriage. In 1844 James Pilbrow pointed out that the idea did not appear to have occurred to any one to connect a carriage outside the tube to a piston within it without the use of the continuous valve. He therefore patented a system which consisted of a circular tube having a longitudinal square chamber mounted on the top and opening into it. The piston, which traveled in the tube, was connected by an armature with a tail piece, which traveled in the square chamber above it. This tail piece was a double rack, which, as it passed along, drove pinions fixed at intervals in pairs on either side of it. The spindles of these pinions were continued upward through stuffing boxes, their upper ends carrying pinions gearing into racks attached to the underframing of the first carriage of the train. This system was designed for use either on common roads or on railways. Two other modifications of the continuous valve should have a passing notice. They are those of M. Hallette and Mr. Hay, the former of whom proposed to close the longitudinal aperture of the piston tube by means of two elastic tubes containing water under pressure, the armature of the piston passing between the tubes. Mr. Hay proposed to supersede the hinged valve by one which was free at both edges—a mere strip, in fact, held at the two extremities and passing through a forked armature.

Such are the broad and general principles upon which the construction of the old atmospheric railways was based. These principles were applied in practice to a limited extent only, although, in some instances, with considerable promise of success. In 1840 Clegg and Samuda's system was laid down experimentally on a portion of the West London Railway, at Wormwood Scrubs. So favorable were the results that the atmospheric system was adopted on the Dalkey extension of the Dublin & Kingstown Railway, and this—the first atmospheric railway—was in full operation at the commencement of 1844. Its satisfactory working is alluded to in the report of the House of Commons Select Committee, to which we have already referred. This success led to the London & Croydon Railway Company, in 1844, laying down a line of atmospheric railway alongside their locomotive line, and, further, to the adoption of this method of working by the South Devon Railway Company on a portion of their line. On the latter lines, however, the principle was soon given up as unsatisfactory. It was likewise ultimately abandoned on the Kingstown and Dalkey line after a trial of several years, when the railway was extended to Wicklow. The results of working in all cases clearly showed that the atmospheric system could not compete with the locomotive with any hope of success. The first cost was favorable, but the expense and extreme care necessary to keep the tube and its accessories in working order killed it. Thus the history of atmospheric railways can only be considered as a chapter of failures.

Later times, however, have witnessed a return to the principle, but worked out under conditions differing widely from those under which it existed in the examples we have mentioned. In the pneumatic system, as it was now called in contradistinction to the old title of atmospheric, a tube of large diameter was employed, the carriage itself forming the piston, a useful vacuum being thus obtained. It was, in fact, Mr. Taylor's original proposition, which improved mechanical appliances enabled engineers to work out in practice. About 30 years since the pneumatic system was carried out in various ways. An experimental line of pneumatic dispatch was laid down and worked at Battersea, while later on a shorter pneumatic passenger railway, embodying advances in detail, was constructed and worked for a time at the Crystal Palace. The outcome of the

experimental working of these two lines was the construction of a pneumatic dispatch tube by Mr. Ramell in the very heart of London. This tube extended from the General Post Office, St. Martin's-le-Grand, to the London & North Western Railway terminus, at Euston Square. There was a central station in Holborn, where was placed the machinery for effecting the transit of the trains of carriers. The air motor consisted of a 22-foot fan, driven by a steam engine having a pair of 24-inch cylinders with a 20-inch stroke. The tube was of a flattened horseshoe section, 5 feet wide and 4 feet 6 inches high at the center, and had a sectional area of 17 square feet. The tube between the General Post Office and Holborn was 1658 yards in length, or nearly a mile, the length from Holborn to Euston being 3080 yards, or 1½ miles. The carriers, which were 10 feet in length, were at the ends of the same sectional area as the tube, and weighed 22 hundredweight each. The trains of carriers were drawn from the Post Office and from Euston by exhaust, and were propelled to those points by pressure. Although the system worked very successfully, and was proved to be well adapted for the safe and rapid transit of mail bags and parcels, neither the Post Office authorities nor the general public availed themselves of its services, and this revival of the atmospheric principle proved a commercial failure, and the pneumatic dispatch fell into desuetude. It was also proposed to work vehicles in the tunnel under the Thames, between Smithfield and the south side, by the pneumatic system, but nothing was done in this direction. So far as we are aware, the only form in which the principle has survived is that employed in connection with the telegraphic department of the Post Office.

Lake Iron Ore Matters.

DULUTH, July 16, 1899.—An interesting feature of the present situation on the lakes is the scarcity of ore on lower lake receiving docks. During a recent visit to Lake Erie by *The Iron Age* correspondent the docks at Conneaut, Erie, Ashtabula and Cleveland were looked over, and the small ore piles were their most noticeable feature. With such a movement from mines to these docks as there has been for the first half of the season, it would be supposed that the docks would be well filled, but several of them are practically empty. Conneaut, for instance, has scarcely enough to make a respectable stock pile at a modern mine, and at none of the ports are stocks increasing. Many of the ships are unloaded directly into cars and at Conneaut as high as 25,000 tons has been moved from the port to Pittsburgh in a single day this year. The increase of handling facilities at these docks is a significant factor to the new situation, too, and of this I shall have more to say next week. The movement from the upper lake continues about as last month, and up to July 15 had amounted to about 1,250,000 tons for the month. So far there is no difficulty in moving the full quantity, but stock piles are almost exhausted and there may be a cessation before long. When it becomes a question of hoisting alone the pace of late weeks will be slackened.

Not a week has passed during the past few months that this correspondence has not been able to note the purchase, lease or resumption by original owners of some old and long abandoned mine, many of these properties having been idle from 15 to 20 years. In all there have started up or are now being prepared for resumption on old ranges no less than 32 mines, and these are expected to employ when in full operation not less than 2400 men. Many of these mines will be shipping ore the present season, and they will fully justify the predictions made in the editorial columns of *The Iron Age* two months ago that 100 mines would be mining ore before another season. Indeed, it now seems as if the number would be nearer 120 than 100. This is a notable increase over the 69 properties working last year. The absorption of labor in the mining region is not at all confined to these reopened mines, as by far the larger share of the increased employment is at old mines, and it is estimated that last year's forces at steadily operated mines on all ranges are increased now by about the following figures: Marquette, 1000; Menominee, 1000; Gogebic, 700; Vermillion, 500; Mesaba, 2000, and that more than 18,000 well paid men are now steadily working on the five ranges.

Twenty-six Menominee mines are now making regular shipments to Escanaba docks, and the shipments there are expected to be the largest in history, with one exception. The Chapin mine is now installing a very fine and complete electric light plant for underground. The generator is 120 k.w., with capacity for furnishing about 2400 lights, and is put in by the General Electric Company. All the machinery will be at the company's big water power at Hydraulic Falls, three miles away, whence it now derives its air. The Fleshiem explora-

tions, near the Armenia mine, are showing up well, it is stated.

On the Marquette range the Minnesota Iron Company have secured the Dexter mine, near Ishpeming, and will put 100 men there as soon as possible. The mine has been idle for four years, and the location has been deserted. Probably some ore will be hoisted this year. Work of unwatering the East New York began last week, and good progress is made with a blower and a pump. Exploratory work is under way on the location with a view to opening some open pits, from which ore can be taken. In one of these pits a vein of very rich ore was found the other day within 6 inches of the surface. The extent of the deposit is unknown. The Negaunee Iron Company will sink a new shaft near the Barasa, where the ore ledge has been found 140 feet deep. Considerable trouble is looked for in sinking, as most of it is through quicksand, and the management is prepared for an expensive work. The shaft is expected to open a very large additional tonnage. The Oliver Iron Mining Company, through the Lake Superior Company, have an option on the Hartford mine, near Negaunee, and will thoroughly explore it in the coming three months. An option on the mine, held by the Cleveland Cliffs, expired July 1, and the Oliver Company lost no time in taking it. It is hoped by Dr. Hulst that the Cambria and Lillie deposits extend under the Hartford ground, and he is starting two diamond drills to find out. One of these is at the bottom of the shaft, the other on the surface. If the Cambria body is found the mine will become an important producer in another year or two.

An interesting and important work has begun on the north shore of Lake Superior, in an option given by Martin Pattison to some Eastern company, probably either the Oliver or the Federal interests, on iron property in the Atik-okan region, west from Lake Superior, and north of the international boundary. Some four or five years ago this correspondence referred to explorations then under way there, by Mr. Pattison, and ventured the prediction that sometime these deposits would be opened. As yet no detailed information can be given as to the extent of the properties covered by the option nor of the terms, but I hope to give considerable information soon as to the region and the prospect of early operations there.

The Minnesota Iron Company have optioned 320 acres close to Norway, Menominee range, on which much exploratory work has been done in times past, and where a very large body of ore is likely to be found, unless all signs fail. The existence of an immense body of low grade ore has been proven. Two diamond drills are at work. The fee is held by the Beaver Iron Company.

Several new explorations have started the past week at the Mesaba range, two of them for W. C. Yawkey, in the northeast part of town 58-17. The immense stock piles at the Fayal, 350,000 tons, will be gone before the close of July.

D. E. W.

An Eastern Consolidation.—Reports are current of an ambitious undertaking to consolidate a number of large interests in Eastern and Central Pennsylvania. The scheme embraces the fusion of the Pennsylvania Steel Company at Steelton, Pa., the Maryland Steel Company and the Bethlehem Iron Company, both interests having been for a long time joint holders of the Juragua Iron Company's mines near Santiago, Cuba. There is to be associated with this consolidation a certain party in the ownership of the famous Cornwall iron ore banks at Lebanon, Pa.

The Tidewater Steel Company of Chester, Pa., have purchased a round block of Newfoundland ore.

An industrial convention will be held at Huntsville, Ala., beginning September 4 next, at which a number of important subjects will be discussed bearing on the industries of the South. Among the topics selected for discussion are "The Iron Industries of the South," "The Mineral Resources of the South," "The Need of Industrial Education," "The Relations of the South to the Industrial Wants of South American Countries," "Immigration to the South," "Legislation of the South as affecting Capital and Corporations," &c. It is expected that delegates will be present from all the Southern States.

The city of Nicolaieff, Russia, is about to install a complete system of water supply, to furnish about 2,000,000 gallons per day of 18 hours. The pipe required will amount to about 60 miles, with all necessary connections and fire hydrants. The specifications call also for two large pumping engines, water tube boilers and a quantity of other machinery and supplies. Bids for the entire plant or any portion of it will be received until early in November. Particulars may be obtained on application to V. A. Datsenko, Mayor of Nicolaieff, Cherson, Russia.

The Iron Age.

New York, Thursday, July 20, 1899.

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Questionable Advice.

Judicious buying is just as important an element in successfully conducting a mercantile or manufacturing business as good selling. Men of exceptional business sagacity and large capital take advantage of opportunities presented in dull seasons and lay in stocks which may not be needed for some time, but are sure to be in demand later. If prices advance materially, and the whole market seems to be adjusting itself to new conditions, they endeavor to make sales as close to new prices as possible, because they clearly perceive that a greater outlay will be required in replenishing their stocks. As their cheaply bought stocks are exhausted they do not discontinue buying, if they expect to remain in business, but purchase more and endeavor to get still higher prices in making sales. When advances have been heavy, and a much higher level of values has been reached than that to which they have long been accustomed, they buy more cautiously and perhaps in considerably less quantities, so as to reduce losses in case of a sudden reaction and sharp decline. But they do not stop buying, or if they do they virtually go out of business. They would then have nothing to sell, and their customers would be obliged to go elsewhere for supplies.

The heavy advances which have been made this year are creating much dissatisfaction, particularly among merchants and those manufacturers who work up high grade materials. They have not always been able to stock themselves for the entire year at the prices prevailing when the year opened. Probably every time they purchased fresh supplies they found a higher rate asked than the time previous. They are consequently becoming irritated, fearing that their customers may curtail purchases. This irritation is being observed in official utterances, as, for instance, in the address of President Jewett, of the Michigan Hardware Association, delivered at the convention in Detroit last week. Mr. Jewett scored manufacturers for unreasonably advancing the prices of hardware, and suggested as a check on the upward movement that merchants should refuse to buy goods, and let their shelves go bare until more reasonable rates are made. This advice was given seriously, as a part of an official document, and Mr. Jewett had evidently weighed well what he proposed to say. Yet, as a sagacious merchant, who has built up a good business, would he take his own advice? Would he permit his stock of hardware to become badly broken, so that customer after customer would have to be turned away, to try to get elsewhere what Mr. Jewett usually kept in good supply, but now refused to provide? Would not his customers be even more exasperated by their inability to get what they needed, and perhaps needed badly, than by his asking them a little higher price because of his higher costs? The answer may be made that if all hardware merchants simultaneously refused to buy, the manufacturers would be brought to their terms at once. But how long would it take to bring all hardware merchants in line? Those who prefer to stay in business, even if prices seem unduly high to them, would get all the trade which the others turned from their doors.

The only course for those to pursue who fear a sudden drop is to purchase conservatively. They will then have no great surplusage of stocks when the drop comes. On the other hand, they may not reap much benefit from advancing prices, because they will be steadily replenishing at higher costs. So far this year those who have bought heavily when they did buy have made the most money, as subsequent advances gave them good profits. It is indeed a wise man who can tell when the proper time comes to change his policy.

Progress of the Gold Standard.

Within a few days a consular report has stated that Ecuador is making good progress in preparing for the establishment of the gold standard two years hence, which was decided on last year. Practically the country has it now, for during all of last year the rate of exchange was maintained at a uniform figure representing the value the standard silver coin will have in the gold standard to be introduced. Still more recently a Parliamentary committee has approved of the purpose of the British Indian Government to adopt the gold standard, and it is asserted very positively by persons in a position to know that the members of the House who met last month at Atlantic City decided fully upon a law recognizing the gold dollar as our only standard, and did so because the representatives of the West were confident that their constituents would sustain this, and that the Senators who have been conferring at Narragansett Pier are equally united on this single step of financial reform. The drift of public sentiment is suggested by a prominent Western advocate of silver coinage, who protests that the silver men must be consistent even if they have no chance of winning; this is an admission that the popularity of silver is declining.

After all the discussion of recent years it is not necessary to explain that these proposed changes here and abroad involve no diminution in the quantity of money, while the product of the mines promises a continuing increase in the supply of the money metal. But they do indicate a growing conviction that as there must be fixity in the units of weight and measurement, so there must be fixity in the unit of value, and while the uniformity is not absolutely necessary it is a great convenience.

The gold dollar has a fixed and invariable relation to the pound sterling. If the pound sterling be made a legal tender in India the rupee will have an invariable relation to the pound sterling by being coined only on Government account and redeemed by the Government at the rate of 16 pence. In Ecuador the pound sterling will be a legal tender, there will be a native gold coin containing exactly the same amount of pure gold, and the silver sucre will have an invariable relation to the gold condor and sovereign, because it will be coined only on Government account and will be redeemed by the Government at the rate of 10 sures to a condor. Neither in India nor in Ecuador is any change in the value of the coin in common use involved in this. The rupee is already worth about 16 pence, and the sucre is now worth about 2 shillings. Neither was there any change in the value of current coin in Japan when the gold standard was adopted; by redeeming the silver yens in gold coins at a fixed ratio, and controlling the production of the yens, the Government undertook to prevent any further change in their value compared with gold.

The Ecuadorian plan contains one feature that might with great advantage be adopted in this country. The Government will export a quantity of silver and bring

back gold coin of the same real, but, of course, a much smaller nominal value. It is as though the United States sold its hundreds of millions of idle silver coins in the Treasury vaults for gold, and put that in circulation directly, or, by means of certificates, indirectly. The position of the Treasury would be greatly strengthened if it had the gold value of its silver dollars and bullion, even if there were further loss on the silver as the result of selling it, though no one would advocate an attempt to sell the whole amount at once.

The Copper Supply.

The extraordinary activity in promoting and floating new copper mining enterprises in this country and in all producing lands has undoubtedly created the impression that we are on the eve of another "deluge" of copper. The industry has been so profitable in recent years that it was only natural to look forward to a rapid expansion of the operations of the old companies, particularly since the great rise of the last six months held out hopes of extraordinary profits.

Bitter experience has taught that low values cause only a very slow decline in the output and the same considerations are effective in delaying an expansion in the production. It takes a good deal of time to kill a mine, and a long period must elapse before a going concern can largely expand, or new properties can put metal into the market. Month after month elapses before underground work has so progressed that the ore tonnage can be increased, before new reduction plant can be put into place and before an additional working force can be collected and properly housed.

That ultimately the supply must be enormously increased under the temptation of prices as high as those now ruling admits of no doubt and the evidence clearly points in that direction, but the process is slower than the majority of those conceive who are not familiar with mining.

The statistics collected by John Stanton of the American Copper Producers' Association clearly show how slow the growth has been. We understand that the reporting mines who send in sworn returns include all of the large producers, and that the estimates for the outside mines are based upon direct returns from the most important concerns not included in the former list. These statistics have proven substantially accurate and are close enough for all practical purposes. They show that during the first half of 1899 the output was 124,487 gross tons, as compared with 120,487 tons during the first half of 1898, and with 235,000 gross tons for the whole year 1898. Lately the production has been running at the rate of 22,000 tons per month, which would be equal to about 132,000 tons for the second half.

In the Lake Superior region there has been an enormous activity in opening up old properties and developing new ground. It is only necessary to mention the Rhode Island, Tecumseh, Old Colony, Mayflower, Mohawk, Seneca, Phoenix, Meadow, Humboldt, Arnold, Conglomerate, Washington, Baltic, Trimountain, Winona, Wyandotte, Kaukauna, Elm River, Belt, Adventure, Evergreen, Michigan and Victoria. This is an imposing array, and yet not a single one, with the exception of the Baltic, will figure as a copper producer in this year, and very few of them will have anything to sell in 1900. Some of them are likely to figure prominently in the future, and all have sufficient cash in the treasury to do a large amount of exploration work. But they may be dismissed as factors for the next twelve months. The only new property which may be a factor is the Arcadian, which is being opened up on a grand

scale and is building a mill of three stamps. How much it will produce depends upon the grade of the rock, concerning which nothing that is definite is known.

Among the old mines we may note that the Quincy is putting up a new mill of three stamps, which may bring out a moderate increase. The Franklin is expected, with its mill of four stamps at Grosse Point, to run up its product from about 3,000,000 pounds to about 10,000,000 pounds per annum. The Osceola is adding three stamps and will get up to 25,000,000 pounds per annum for the group, as compared with its present average of 12,000,000 pounds. The other mines have not enlarged to any extent. It is doubtful, therefore, whether the Lake, which produced 158,000,000 pounds in 1898, will attain 185,000,000 pounds in 1900, or go much above 165,000,000 pounds this year.

Montana dropped to 206,900,000 pounds last year, chiefly because the Anaconda fell off heavily. If the State regains its 1897 production of 230,000,000 pounds this year it will do well. The only increase which may become effective during the second half of the current year is that of the Montana Ore Purchasing Company, which is completing additions to plant which will swell output by about 8,000,000 pounds per annum. What the Washoe will do in 1900 is still a matter for conjecture.

It is in Arizona that the most striking growth has developed lately, and is still in progress. The production was \$1,500,000 pounds in 1897, and rose to 111,000,000 pounds in 1898. It will be further heavily increased during the current year, although this is not likely to tell until well into the fall. Among the old companies, the United Verde, the Copper Queen, Detroit and Arizona Copper Company are making improvements, or are more fully utilizing equipment, and are expected to increase their rate of product by about 18,000,000 pounds per annum. The Globe district, with its railroad connection finally established, will produce at the rate of 12,000,000 pounds per annum. But we repeat that these figures will not be attained this year, and promise to become effective only until well into 1900.

Then there have been started and are under way in Arizona a very large number of undertakings concerning whose future as copper producers little that is accurate is known. Generally speaking the expectations of projectors as to time of starting and magnitude of operations may be liberally discounted. Among the producing mines there are the Nielsen, Azurite, Table Mountain, Middlemarch, with Helvetia, Lombard, Goode & Co., Black Warrior and others getting ready. They are not likely to make any impression during the current year, whatever their future may be. The same may be said of undertakings in New Mexico and Nevada. In the latter State the Adelaide Star is producing, and the Vulcan is preparing. In Idaho, the Seven Devils district will not do much this year, since the railroad will not reach the district.

Of more importance is the Utah Consolidated, which some time since started a large smelting plant and has begun shipments. When in full operation the company will add 1,000,000 pounds per month to the supply.

There has been a good deal of activity in copper mining in California. The Mountain at Keswick, which has come into prominence during the past two years, is expected to increase somewhat during the current year. The Ivanpah Company are now shipping, and the smelter at Madera is completed.

In the South the Tennessee Copper Company have taken hold of the principal properties of the Ducktown district and expect to handle the ore by modern methods. A large plant is under construction, which will ultimately produce 12,000,000 pounds per annum, but it

will be well into 1900 before the metal reaches the market.

A little copper is to come from North Carolina and from Vermont, but the quantities are relatively insignificant.

We believe that this review of the situation will prove that no very important additions to the copper supply need be expected during the current year, although there will be some expansion, unless some accident cuts off some large producer. During the first half of 1900 the preparations for an enlarged output will begin to tell heavily, and the year ought to end with an unprecedented production of copper. To what extent in the meantime the present high prices for copper will check consumption it is difficult to gauge. That it is having that effect is firmly believed by many in the trade.

An interesting comparison between the boom periods of 1879 and 1899, as affecting the stove trade, has been made in a paper contributed to *The Metal Worker* by Franklin L. Sheppard, in which he touches upon one important point which many industries are beginning to suffer from. We cannot do better than to quote his words: "Wages have been advanced, and are to-day upon the highest level yet known. For five years past, just as in the five years preceding 1879, foundries have been running at less than their full capacity, and very little attention has been paid to the training of apprentices. When skilled journeymen could not obtain employment there was little inducement for boys to learn the trade or for employers to teach them. During these years numbers of foundrymen have retired from the business of stove manufacture, and there has been no recent increase in foundry capacity. The trade this fall will pay the penalty of this indifference. Even poorly trained stove molders are scarce, and good molders are scarcer. There are very strong indications that between a shortage of material and a shortage of labor stove foundry managers this fall will find their hands full in the effort to supply their customers with reasonable promptness."

PERSONAL.

Edward N. Hurley, president of the Standard Pneumatic Tool Company, Chicago, sailed for Europe on the steamship "Campania" on the 15th inst. to perfect arrangements relative to the appointment of agents for the disposition of their Little Giant pneumatic tools on the other side of the Atlantic and the establishing of works in England. Their foreign business has increased remarkably during the past year, especially in Great Britain and Germany, and they are now making shipments of machinery to all parts of the civilized world.

Winthrop Slade has been appointed superintendent of the New Jersey Steel & Iron Company at Trenton, N. J.

Tokumoto Katayama, imperial architect of Japan, is now in this country visiting the principal steel works. Mr. Katayama's purpose, it is stated, is to place contracts for structural steel material to be used in the new palace to be erected at Tokyo for the Crown Prince of Japan.

George L. Claypool, formerly with the Mahoning Valley Iron Company, Youngstown, Ohio, has been appointed superintendent of the Andrews plant of the Republic Iron & Steel Company at Youngstown, succeeding E. E. Moore.

W. B. Foote, formerly connected with the Edgar Thomson Steel Works, Braddock, Pa., has been appointed superintendent of the Juniata Furnace & Foundry Company, Newport, Pa.

H. H. Campbell, superintendent of the Pennsylvania Steel Company at Steelton, Pa., has sailed for Europe

T. S. B. Wood formerly superintendent of the Baltimore & Ohio rolling mill at Cumberland, Md., has been appointed manager of the Wheatland rolling mill at Wheatland, Pa., which has just been started up in the manufacture of skelp iron.

OBITUARY.

JOSEPH STOKES.

Joseph Stokes superintendent of the New Jersey Steel & Iron Works, died at Trenton, N. J., on July 2, aged 66 years. He was born in England, but came to this country when a child. He secured employment as a roller at the Trenton Iron Company's mills and subsequently became assistant superintendent. For many years he had filled the position of superintendent of the New Jersey Steel & Iron Company's works.

THOMAS W. EDWARDS

Thomas W. Edwards, a prominent mining man of the Lake Superior region, died at his home in Houghton, Mich., July 6, aged 61 years. He was born in Devonshire, England, and came to the United States 50 years ago. Mr. Edwards was the original purchaser of the rolling mill property at Houghton, Mich., and it was largely through his efforts that this business was established. The Wolverine Mining Company were organized in 1882, with Mr. Edwards as president of the company. Other mining properties with which he was prominently identified were the Florida, now owned by the Calumet & Hecla, and the Edwards, now part of the Arcadian. Mr. Edwards was also interested in mining in the Black Hills. Mr. Edwards was largely instrumental in developing many of the mines of the Houghton district.

EDWIN J. PRYOR.

Edwin J. Pryor, late superintendent of the Lake Superior Iron Works, Houghton, Mich., died suddenly on July 7 from typhoid pneumonia, at his home in Houghton, at the early age of 33 years.

AVERY B. EDWARDS.

Avery B. Edwards of Winooski, Vt., who died on July 14 at the age of 81 years, was one of the oldest and most respected business men of Vermont. He was senior member of the firm of Edwards & Stevens, machinists and millwrights. For many years he possessed the only machine shop in Vermont and his business extended all through that State, Northern New York and Canada. Mr. Edwards was a member of the Vermont Legislature for many years and held a number of public offices.

JOHN B. CLAPP.

John B. Clapp, one of the best known business men of Hartford, Conn., died at his home in that city on July 14, after a lingering illness, aged 57 years. He was born at Wethersfield, Conn. After a long and honorable career in the army during the Civil War he went to Hartford, where he formed a partnership with Roswell Blodgett in the iron and steel trade under the firm name of Blodgett & Clapp, remaining with the firm as junior partner until the concern were formed into a stock company, when he was elected secretary and general manager. He severed his connection with that house about three years ago and established a partnership with his son in the same line of trade under the name of John B. Clapp & Son, with which he was still connected at his death.

Homestead Improvements.—On Monday, July 17, the 48 inch universal plate mill under erection for some time by the Carnegie Steel Company at Homestead was put in operation. This concern are also building a 42-inch universal mill, a 128 inch plate mill and a large slabbing mill, work on all three of which is being pushed as fast as possible, and the mills will be ready for operation in a very short time. Some time ago the Carnegie Steel Company, Limited, had under consideration the question of building another plant of ten open hearth furnaces at Homestead, but it was decided that it was not a propitious time to build so large a plant. It was determined, however, to build four 50 ton open hearth furnaces, work on which has already been commenced. At the Duquesne Steel Works an entire new heating system is being installed. The soaking pits are being torn out and new furnaces of an entirely new design are being erected. These changes will more than double the heating capacity of the Duquesne Steel Works.

The Pressed Steel Car Company of Pittsburgh so far this month have delivered 168 cars to the Pittsburgh & Lake Erie Railroad, 40 to the Lake Terminal Railroad, operated by the Lorain Steel Company, and about 300 on a large order received from the Oregon Short Line Railroad. The traffic manager of the Pressed Steel Car Company arranged to load these 300 steel cars with coke from the H. C. Frick Coke Company, and the railroad company, instead of having to pay 4 cents per mile for the empty cars, which is the regulation price for such transportation, received \$18.72 for services for each car between Pittsburgh and the works of the Illinois Steel Company at Chicago, making a total salvage of about \$5000, all of which goes to the Oregon Short Line, as that company own the cars.

"Postage Stamp" versus "Graded" Rail Rates.

Atlantic Coast Manufacturers and Pacific Coast Jobbers.

SAN FRANCISCO, July 12, 1899.—The question of railroad rates has so stirred up the entire mercantile community of this city at present that everything else has for the time being given way to it, and therefore your correspondent thought it best to obtain the facts exactly as they are here presented from a prominent member of the Transportation Committee of the Pacific Coast Hardware and Metal Association, and in an interview with the gentleman referred to obtained the following. It may be said in passing that this represents the feeling of the entire mercantile community of this city:

The subject of transcontinental freight rates has been one to which the manufacturers of the Atlantic seaboard, particularly those located in the New England and Middle States, have paid but little attention and one with which they are surprisingly unfamiliar, notwithstanding the fact that it is a subject that is of vital importance to their interests, and one to which they should give careful study.

It is not generally known on what basis transcontinental freight rates were established, or the advantages that the Atlantic seaboard manufacturers have been possessed of, and which they have fully enjoyed, under the system of postage stamp freight rates.

To explain what is meant by the term, "postage stamp freight rates," we would say that it is a rate of freight established from, we will say, New York City, Boston, Philadelphia and other Atlantic seaboard common points, to San Francisco, Portland and Seattle and other Pacific Coast terminal points.

In order that all manufacturers and jobbers east of the Missouri River may be placed on an equality with each other, so far as freight rates to the Pacific Coast are concerned the transcontinental railroad companies put into effect a tariff, giving all common points, east of the Missouri River, the same freight rate as is enjoyed by New York and points in common therewith, the railroad companies carrying their freight through to the Pacific Coast terminal points on the same principle that the Post Office Department carry their letters, at the same rate of postage from all points, regardless of distance; thus the name of postage stamp rates was adopted as very comprehensive.

When the Interstate Commerce Commission was created considerable friction ensued in regard to freight rates, under the long and short haul clause, and much time and thought were devoted to the subject. The principal railroad companies interested in transcontinental transportation maintained the position that, inasmuch as the Atlantic seaboard shipments to the Pacific Coast were subjected to fierce water competition by sailing vessels around Cape Horn, and by steamer route via the Isthmus of Panama, the long and short haul clause should be set aside and the railroad companies permitted to make a competitive rate from the Atlantic to the Pacific seaboads, irrespective of the rates that might be established from interior Eastern States to interior Western States.

This policy was vigorously contested by the Western cities, such as Cleveland, Chicago, St. Louis, St. Paul and Duluth, they claiming that, as the distance from their cities to the Pacific Coast was very much less than from the Atlantic seaboard, they should have a freight rate proportionately less than that established from the Atlantic Coast cities to the Pacific Coast terminals.

On the other hand the transportation companies claimed that as the shipments from Western cities were not subjected to the water competition their freight rates should be made up on the basis of the local rate of freight to the Atlantic seaboard (say New York) plus the competitive rate of freight from the Atlantic seaboard (say New York) to Pacific Coast terminals. This, of course, would have placed the Western cities at a disadvantage in competing for the Pacific Coast business, and not only the manufacturing, but the jobbing interests as well, of the Ohio and Mississippi valleys protested against the advantage that this would give their more favored competitors situated on the Atlantic seaboard, while at the same time the Eastern manufacturer and jobber apparently took little interest and no action in the matter.

The result of this long controversy was that the postage stamp rate was adopted as a compromise measure, and all points from the Missouri River to the Atlantic seaboard inclusive were given the benefit of a common rate, thus placing the manufacturers and jobbers of all States east of the Missouri River on a com-

mon basis, so far as transcontinental freight rates are concerned. The consequence was that the manufacturers situated in the Ohio and Mississippi valleys gradually began to make encroachments on the Pacific Coast business, heretofore confined almost exclusively to manufacturers on the Atlantic seaboard. While freight rates were kept at a low mark, nearly all shipments were moving by rail, and the water lines were gradually forced out of business, until to-day there is scarcely 5 per cent. of the goods shipped to Pacific Coast points by either of the water routes.

At the time this compromise was made it was predicted that it would only be a question of a few years before the manufacturers and jobbers located in the Mississippi and Ohio valleys would secure the largest share of the Pacific Coast business, and would then demand from the transportation companies the establishment of a new system of transcontinental rates, which were termed graded rates, the latter being a term applied to freight rates established on the basis of mileage; that is to say, if the distance from New York to San Francisco was 3000 miles and the rate was \$1 per 100 pounds, that Chicago, being 1000 miles nearer San Francisco, should have a rate of 66 2-3 per cent. of the New York rate, or 66 2-3 cents per 100 pounds, a clear advantage of 33 1-3 per cent., on account of the distance being one-third less.

The prediction that this contention would be raised proved to be correct, and Pacific Coast jobbers and the manufacturers and jobbers of the Atlantic seaboard are now face to face with this proposition, and although the Pacific Coast jobbers have vigorously protested and fought against the graded rate principle, Atlantic seaboard manufacturers and jobbers, although equally if not more greatly interested in the subject, have taken no interest or part in the controversy.

The Pacific Coast shippers interested in this subject have, up to the present time, been successful in showing the railroad companies that it is to the latters' advantage to maintain and defend the postage stamp rate, and combat the graded rate principle. But very recently the jobbers of St. Louis, Chicago, St. Paul and Duluth have brought such influence to bear on the traffic managers of the Northern Pacific Railway and the Great Northern Railway companies that they have issued a tariff (S. R. 188) in which the graded rate principle is adopted, and the above mentioned Western cities are given a very much lower rate of freight than those situated on the Atlantic seaboard, and which are subjected to water competition.

As a matter of fact I believe that when the transportation companies, figuratively speaking, picked these Western cities up bodily and placed them on the Atlantic seaboard (which they did under the postage stamp system), thus giving them the benefit of competitive water rates around Cape Horn, &c., to which their natural geographical position did not entitle them, a great injustice was done to the cities that naturally enjoyed the water competition; but this did not satisfy the cities of the Middle West, and now they not only wish a great advantage in freight rates, but also wish to eliminate, to a great extent, the differentials in rates heretofore existing between the carload and less than carload shipments; thus depriving the wholesale purchaser of freight of the legitimate advantage that he should have.

As an illustration of the effect that the graded rate principle would have, we would cite for an example the item of sugar corn, which is packed very largely (the writer understands) at Portland, Me., and Baltimore, Md., and which is also put up at some points in Illinois. Under the postage stamp system, the freight rate from all three points to Pacific Coast terminals being the same, it simply becomes a matter of the manufacturer's price, or the preference of the buyer, which manufacturer will secure the business; but, under the graded rate principle, which the Western manufacturers are now fighting for, the Portland, Me., and Baltimore, Md., manufacturers would be at a decided disadvantage, because the freight rate, under the graded rate principle, would approximately be one-third less than it would be from the Atlantic seaboard cities. The consequence would be that the Illinois manufacturer would secure the entire business of this great Western empire, and drive the goods of the Atlantic seaboard packer out of the Pacific Coast market.

What is true in regard to corn is equally true in regard to any commodity manufactured or originating on the Atlantic seaboard and in the Mississippi Valley. We believe that this single illustration will suffice and serve as an alarm that should rouse an interest in the commercial bodies of the Atlantic seaboard States and that a vigorous protest will be made to the transportation companies against the graded rate principle.

When the Northern Pacific and the Great Northern Railway companies announced, some 60 days ago, the issuance of their tariff S. R. 188, the entire mercantile jobbing community of the Pacific Coast telegraphed pe-

titions and protests to the traffic managers of these roads, but without avail.

However, eventually a conference was held and a committee of Pacific Coast jobbers went to St. Paul to confer with the traffic managers interested, and on the committee's arrival there they were met by a large delegation of Mississippi Valley jobbers and manufacturers, who were loud in their praises of the graded rate principle, although the arguments that they advanced in favor of it, boiled down, simply amounted to the statement that graded rates are correct, just and equitable to all parties concerned, because "we want them."

To a disinterested party it would appear that their own interests were the only ones considered.

On the other hand, the Pacific Coast jobbers presented a long argument, going into detail of facts, conditions and figures, in favor of postage stamp rates, at the same time claiming that, while postage stamp rates were years ago accepted as a compromise measure, they were not just and equitable to Atlantic seaboard cities, who were entitled to the benefit of the sea competitive rates, and that the Western cities interested should never have been given equal advantages; but, inasmuch as the principle had been adopted as a compromise measure, that the Pacific Coast shippers were willing to abide by it.

The traffic managers of the two above mentioned roads, after listening to these arguments for some two days, took the matter under advisement for about a month, when they announced their decision, in effect that they would adhere to the graded rates as recently adopted, notwithstanding the petitions, arguments and protests of their Pacific Coast patrons and commercial bodies of the Pacific Coast.

The arguments advanced by the Pacific Coast Committee who went to St. Paul are very comprehensive and clearly defined, but are quite too long to be embodied in a letter; but any one interested in the subject, who desires a copy of the argument, can have same by addressing Thomas P. Smith, 8 Pine street, San Francisco, Cal.; and it is earnestly recommended that those who are interested in this subject obtain a copy and familiarize themselves with the matter.

The Pacific Coast jobbers in particular hope that the mercantile bodies of the large Eastern cities, such as Philadelphia, New York and Boston and their sister cities, located in the New England and Middle States, will also take this matter up and battle for the advantages to which their geographical position naturally entitles them; for, commercially speaking, they are much nearer the Pacific Coast buyer than the cities of Chicago, St. Louis and other cities in the Ohio and Mississippi valleys.

The buyers of commodities care nothing about mileage, nor do they ever inquire anything about distance. What they ask is, what is your price and what is your freight rate? and if a manufacturer's price on the Atlantic seaboard is the same as a Western manufacturer's, while the latter's freight rate is less (and it should be more, owing to lack of water competition), he, naturally, has an advantage, and it is this advantage that the Western manufacturer is endeavoring to secure and make permanent.

The Pacific Coast buyers do not believe that the manufacturers of the Atlantic seaboard are prepared to surrender their Pacific Coast business without a struggle, and, therefore, look forward confidently to material assistance from them in this controversy.

J. O. L.

The Central Foundry Company.

The Central Foundry Company, the consolidation of cast iron soil pipe interests, to which reference was made last week, have this week filed articles of incorporation with the Secretary of State of New Jersey. The company certify to a capital of \$14,000,000, of which sum half will be 7 per cent. preferred stock and half common. The company propose to "manufacture cast iron soil pipe and do a general foundry business." Baring, Magoun & Co., the New York City bankers, are financing the enterprise. We understand that options have been closed on the soil pipe plants of the following concerns: Ronalds & Johnson Company, Monitor Iron Works, Cassidy & Adler and J. L. Mott Iron Works, New York City; Henry McShane Mfg. Company, Baltimore; J. Regester & Sons, Baltimore; C. A. Blessing, Philadelphia; Phoenix Foundry & Mfg. Company, Lansdale, Pa.; Midvale Foundry Company, Allentown, Pa.; Wilmington Foundry Company, Wilmington, Del.; A. L. Smith Iron Works, Bignall Mfg. Company, Beach & Co., Medina, N. Y.; Ahrens & Ott Mfg. Company, Louisville, Ky.; Illinois Malleable Iron & Steel Company, Chicago; A. Y. McDonald & Morrison Company, Dubuque, Iowa; St. Charles Mfg. Company, St. Charles, Ill.; Rundle & Spence Mfg. Company, Milwaukee, Wis.; Hoffman, Billings & Weller Mfg. Company, Milwaukee, Wis., and

Gadsden, Ala.; Rush Mfg. Company, Humphreys Mfg. Company, Mansfield, Ohio; Bell Mfg. Company, Vincennes, Ind.; H. C. Wheedon & Co., Anniston, Ala., and Alabama Pipe Works, Bessemer, Ala. This list comprises practically the entire force of cast iron soil pipe manufacturers, with the exception of Abendroth Brothers of New York City and the L. Wolff Mfg. Company of Chicago, which concerns, it is understood, will act in harmony with the combination.

The various plants are to be bought outright and will lose their identity. Some will be closed up entirely and the rest operated as branches of the Central Foundry Company. In addition to cast iron soil pipe the company will manufacture sinks, fittings and plumbers' iron work generally. Their customers will have their orders filled by the nearest works, and so a material saving in freight costs will be secured. The company will take charge of the various plants immediately on payment for the same being made, and this, it is said, will be accomplished within a few days. Representatives of the concerns interested are now in New York awaiting the final settlement.

The Tin Plate Scale.

After a session lasting some days the wage committees representing the American Tin Plate Company and the Amalgamated Association of Pittsburgh agreed upon a scale fixing wages in the tin plate mills for the year beginning July 1, 1899. The scale in full is as follows:

Tin Plate Scale.

When a box of 100-pound coke tin plates is selling at \$4.25 the scale of prices as appears below shall be paid. On each 10 cents increase in the price per box 2 per cent. advance on the prices below shall be paid, and on each 10 cents per box decrease a deduction of 2 per cent. shall be made to said base. But it is understood that the wage list below is the minimum for the year ending June 30, 1900.

Gauge numbers.	Holler, per ton.	Doubling, per ton.	Heating, per ton.	Shearing on jaw or crocodile shears and job or sheet work on squaring shears.	Shearing tin plate on squaring shears.	Screw hoy, per ton.
8 to 11.....	\$2.35	\$1.07	\$0.98			
12 and 13.....	2.45	1.10	1.03	\$1.26		
14 and 15.....	2.82	1.26	1.23			
16 and 17.....	3.73	1.68	1.52	1.44		
18 to 20.....	4.16	1.87	1.70			
21 to 24.....	4.62	2.14	1.87	1.21	.46	.45
25 and 26.....	4.92	2.27	2.06		.47	.46
27 and 28.....	4.97	2.39	2.22	1.13	.49	.47
29 and 30.....	5.64	2.91	2.68	1.01	.52	.49
31.....	5.75	3.06	2.86	.97	.53	.52
32.....	6.00	3.21	3.01	1.00	.55	.54
33.....	6.37	3.37	3.10	1.03	.59	.56
34.....	7.06	3.59	3.39	1.20	.61	.59
35.....	7.42	3.79	3.60	1.20	.63	...
36.....	7.90	3.89	3.74	1.25	.66	...
37.....	8.00	3.98	3.79	1.21	.68	...
38.....	8.08	4.01	3.85	1.17	.70	...
39.....	8.51	4.39	4.14	1.29	.72	...
40.....	8.95	4.94	4.83	1.33	.75	...
41.....	9.18	5.18	5.06	1.40	.76	...
42.....	9.41	5.40	5.29	1.45	.77	...
43.....	9.64	5.63	5.52	1.49	.78	...
44.....	9.87	5.86	5.75	1.55	.79	...

1. Thirteen (13) per cent. less than above prices for iron, except shearman.

2. Twenty (20) per cent. added for changed iron and steel.

3. Seventeen (17) per cent. added for pickle finished iron and steel, except shearman.

4. For all sheets sheared into circles on tin plate mills where the loss exceeds ten (10) per cent. twenty (20) per cent. extra shall be paid.

5. All plate and sheets cut down to smaller sizes on tin plate mills be paid for at scale prices.

6. For all sheets rolled on tin plate mills 14 square feet and over, not cut down to smaller sizes, and for tin plates worked other than tin plate style, sheet mill prices, including hands' prices, shall be paid, and when working sheets, tin plate style, the additional percentage of entire sheet mill cost over tin plate shall be added to all hands' wages on the mill, and it is understood when plate worked on a tin plate mill and is not "first" pickled, annealed, cold rolled and thoroughly treated as plate for tinning purposes before leaving the mill where it is worked, it shall be paid for at sheet mill prices. (For rule see addenda.)

7. Where improved squaring shears are used the company shall pay for opening packs and grinding the knives, and on jaw and crocodile shears the company to pay for opening packs, and in mills where plates are cut into smaller sizes than 14 x 20 additional pay for shearing shall be arranged, shearman to charge and set the knives.

8. Catchers on tin plate mills to receive 23 per cent. of

roller's statement, the same to be deducted from the roller's statement and paid by the company.

9. Eight (8) hours shall be a day's work on tin and black plate mills, said mills not to follow out, except when notice to mill crews is given of a change in time of starting Friday morning to Saturday morning, and mills are not to operate on Saturday afternoon or Saturday or Sunday nights.

10. It is agreed that no more than three changes in the classification of sheet and tin plate mills can be made during the scale year, and due notice shall be given before such changes.

11. The weight of bar be marked on the bar when brought to the mill or scales for weighing bars be furnished at the option of the company.

12. In each tin mill a blackboard shall be furnished, on which the complete weight of each turn shall be placed within a reasonable time after being made.

13. All tin and black plate shall be weighed by the company after being sheared and opened.

OUTPUT.

The limit of a turn's work of 8 hours shall be as follows:

Gauge numbers.	Pounds.	Gauge numbers.	Pounds.
8 to 11.	13,500	27.	6,150
12 to 13.	12,500	28.	5,650
14 to 15.	11,500	29.	5,850
16 to 17.	10,500	30.	5,750
18 to 20.	9,500	31.	5,550
21 to 24.	7,500	32.	5,350
25.	6,750	33.	5,150
26.	6,350	34 and lighter.	4,950

Where 28 gauge is worked in six or eight sheets to the pack 6150 pounds shall be the limit.

On sizes $20\frac{1}{2} \times 56$ and larger an excess of 5 per cent. on the limit may be made, but if not made on that turn the per cent. cannot be made up.

Turns below the limit may be made up during the same week for that week, but in making up lost weight on any turn the output shall not exceed the limit over 500 pounds, and when the 5 per cent. is made for that turn the 500 pounds cannot be made.

SCALE OF PRICES FOR MOREWOOD STACKS.

	Tinning. Cents.	Washing. Cents.	Catching. Cents.
Coke.	11	11	3 $\frac{1}{4}$
B. charcoal.	12	12	4
Charcoal.	12	12	4
Double rolling.	14	14	4
Heavy coating.	12	12	4
Old style.	15	15	4

Standard.—A box of 14 x 20 containing 112 sheets, equals 31,360 square inches, to be the standard.

All boxes weighing over 136 pounds to be paid for as over weight.

John Stanton reports the Copper production in the United States and of the foreign reporting mines and United States exports as follows, in gross tons of 2240 lbs.:

Reporting mines.	Outside sources.	Total U. S. product.	Product foreign mines.	U. S. exports.
First half 1895...	70,612	9,100	79,712	42,484
Second half 1895...	84,885	6,600	91,485	43,674
Total 1895.....	155,497	15,700	171,197	86,178
First half 1896...	94,180	7,200	101,380	42,255
Second half 1896...	95,814	7,200	102,514	43,941
Total 1896.....	199,494	14,400	203,894	86,196
First half 1897...	103,651	5,000	108,651	44,268
Second half 1897...	100,555	6,900	107,455	44,007
Total 1897.....	204,206	11,900	216,106	88,270
First half 1898...	112,687	7,800	120,487	40,880
Second half 1898...	103,585	10,250	113,785	43,674
Total 1898.....	216,222	18,050	234,272	84,554
First half 1899....	111,987	12,500	124,487	56,460

At a special meeting of the Board of Directors of the Missouri and Kansas Zinc Miners' Association, held at Joplin on the 14th inst., it was resolved that as immediate needs do not require the amount raised by the assessment of $2\frac{1}{2}$ per cent. recently made, all money paid under it above 25 cents per ton be refunded. Until further notice the assessment on all zinc ore sold by members of the association has been fixed at 25 cents per ton.

The Pittsburgh Nail Keg Stave & Head Company of Pittsburgh have been granted a charter of incorporation under the laws of West Virginia, with a nominal capital of \$1000 and privilege of increasing to \$20,000. The concern will build a plant in Pittsburgh for the manufacture of keg staves and heads.

The Standard Underground Cable Company of Pittsburgh will build a branch cable factory in New Jersey. The New Jersey factory will in no wise conflict with the Pittsburgh plant, as a different class of product will be made.

THE WEEK.

A report from the City of Mexico states that negotiations have been concluded for the sale of the volcano of Popocatepetl to an American syndicate for \$500,000. The new owners will immediately build a cog wheel railway to the summit and mine the sulphur deposits in the crater of the volcano.

Reports from Central Western and Western points indicate a pronounced condition of scarcity in railway freight equipment, amounting to practically famine in several quarters. And this in spite of the enormous additions to their rolling stock made this season by nearly all the railways.

The Reading Iron & Coal Company have purchased 9000 acres of soft coal lands in Somerset County, Pa. The distance from the mines to the company's works at Reading, Pa., is 277 miles.

A corps of engineers is engaged in making surveys preliminary to the erection of a large electrical station at Cumberland Falls, Ky., to furnish power for lighting and manufacturing purposes to the towns of Central Kentucky. Col. R. C. Morgan of Lexington is the leading spirit in the enterprise.

Owing to the threatening aspect of political affairs in the Transvaal Republic many orders for American goods for South Africa have been canceled.

An order has been issued by President McKinley extending the privileges and protection of the United States flag to the shipping of Porto Rico and the Philippines.

The British Board of Trade returns for the first six months of 1899 make a satisfactory showing. The imports into the United Kingdom during the period named amounted in value to \$1,145,265,970, an increase of \$12,476,765 over the first half of 1898. The export trade of the country makes a much better comparative showing, with a gain of \$84,624,768 in a total of \$624,664,022 worth of British goods exported during the half year.

A special train was run a few days ago from Boston to Portland, Maine, to make a long run test of coke fuel. The experiment is reported to have been satisfactory in every way, the run occupying three hours. The coke was consumed, leaving but little clinker or dust, while the firemen did not have to touch the fire more than once in 15 to 18 miles.

The United States Circuit Court of Appeals in New York on Tuesday affirmed the decision of the lower court in the suit of the Westinghouse Air Brake Company against the New York Air Brake Company, in which the Circuit Court found in favor of the New York Air Brake Company. The decision of the lower court is affirmed with costs. The opinion says: "The patent should not have a broad scope, and should not be able to control analogous modes of venting to the atmosphere in different air brake systems." This decision leaves the two companies in exactly their present position, and it is understood that the litigation against the New York Company will be continued by the Westinghouse Company in two other cases now pending, which cover the same form of apparatus and principle of operation.

Preliminary plans for two proposed new bridges over the East River at New York City are being prepared and will be submitted to the Secretary of War within a month. The exact locations of the proposed bridges have not yet been fixed, but surveys are being pushed for this purpose. The city Board of Estimate and Apportionment have appropriated \$50,000 for the preliminary surveys.

The *Financial Chronicle's* computation of railway earnings for the first half of this year shows an increase over the first six months of 1898 of nearly \$40,000,000. The earnings in the first half of last year were \$57,000,000 ahead of those of 1897.

The Colorado Supreme Court handed down, on Monday, a decision declaring unconstitutional the eight-hour law enacted by the last State Legislature to take effect on June 15.

The Iron City Metal Ceiling Company of Pittsburgh have been granted a charter of incorporation, under the laws of West Virginia, with a nominal capital of \$1000, with the privilege of increasing same to \$15,000. The shares are \$100 each and are held by John C. Graff and M. Walters of Pittsburgh, Chas. L. Atwood and Jos. G. Atwood of Homestead, and Harry L. Graham of Allegheny, Pa. This new concern will take over the business of the Iron City Mfg. Company of Pittsburgh, manufacturers of patent paneled metal ceilings, stamped steel plates, patent cap seam roofing, crimp roofing and siding.

MANUFACTURING.

Iron and Steel.

A. M. Byers & Co., pipe and tube manufacturers, of Pittsburgh, have signed the Amalgamated Association scale. This firm have operated non-union heretofore.

At Pittsburgh a formal order has been made by the courts dissolving the Oliver Wire Company, the Pittsburgh Wire Company and the Allegheny Furnace Company, concerns taken over by the American Steel & Wire Company.

The Etna-Standard Iron & Steel Company of Bridgeport, Ohio, have made a successful start in their new steel works at Mingo Junction, Ohio. It is expected that ultimately the output in the converting mill will be 2000 tons per day. The product will be rolled by passing a part of it through the old blooming mill and the balance through the new billet and sheet bar mills. The latter are not yet in operation, but they will be tested at an early date.

The Lukens Iron & Steel Company of Coatesville, Pa., will start their puddle mill in the fall and will erect a 138-foot extension to their steel plant shop, in addition to building two new furnaces. The company have posted notices of an increase of wages.

The Pittsburgh Steel Hoop Company of Pittsburgh have been granted a charter with a capital of \$150,000. It will be recalled that this concern will engage in the manufacture of hoops and bands at Monessen, Pa., in the plant which was to have been occupied by the Pittsburgh Horse Shoe Company.

The Sweets Steel Company of Syracuse, N. Y., are remodeling and enlarging their converting mill, and will equip it with machinery for the manufacture of steel billets. A basic open hearth furnace is being built. The converting of Swedish iron will also be continued. Another heating furnace is to be added to the west mill, and a train of 9-inch rolls and two more engines are being built. At these works wages have been increased three times since the beginning of the year, aggregating about 20 per cent.

The Susquehanna Iron & Steel Company have acquired the plant of the Janson Iron Company of Columbia, Pa. The price paid for the property was \$96,500.

The National Steel Company have awarded the New Columbus Bridge Company, at Columbus, Ohio, the contract for the erection of a blooming mill in the King, Gilbert & Warner Works at Columbus, Ohio.

Salem Furnace of the Salem Iron Company, at Leetonia, Ohio, is being considerably improved. A new blowing engine is being installed, and additional horse power of Cahall boilers has been purchased.

Miller, Wagoner, Fleser & Co., Columbus, Ohio, will blow in one of their New York furnaces at Shawnee, Ohio, some time this week. This concern advise us that they have now one of the finest furnaces of its size in Ohio. They have spent a large amount of money on the stack and will repair the other furnace at once, and expect to have it in blast early in September. They will then be making about 200 tons of strong foundry iron per day at the Shawnee furnaces. They also have the Bessie Furnace at New Straitsville, Ohio, in blast since last October, the product being high grades of silicon iron exclusively.

The new rod mill of the Ashland Steel Company, Incorporated, Ashland, Ky., is running very satisfactorily, turning out large quantities of well finished rods, for which the concern are having a good demand.

The Wellston Iron & Steel Company, Wellston, Ohio, have leased Madison Furnace, at Rempel, Ohio, and blew it in on July 12. Their Wellston No. 1 stack, at Wellston, they expect to blow in early in September. This concern will then have four stacks in operation, Nos. 1 and 2 Wellston stacks, No. 3 Milton and Madison. Rogers, Brown & Co. of Cincinnati are sales agents.

In regard to the strike of roughers at the plant of Jones & Laughlins, on the South Side, Pittsburgh, the following official statement has been made by the firm: "We made a contract in good faith with our men, which is in vogue until next January. We told the men we did not believe they would ask or try to have their written agreement violated, but it seems that they do desire. The firm, after considering the matter, do not see how they can enter into any negotiations with men who desire to break their contract."

The Dunbar Furnace Company of Dunbar, Pa., who at present have one furnace in operation at that place, will remodel and repair their second stack and put it in operation as soon as possible.

A new plant for the manufacture of cold rolled shafting is being erected at Braddock, Pa. Identified with the new concern is Thomas W. Fitch, Jr., who will be president. A contract for considerable of the equipment to go in the new plant has been given to the Brightman Mfg. Company, Millersburg, Ohio.

Machinery.

The stockholders of the Charles H. Sieg Mfg. Company, Kenosha, Wis., hitherto exclusively manufacturing bicycles, have

decided to reorganize with a capital of \$150,000, enlarge the plant, and begin September 1 to manufacture automobiles and gasoline engines.

The Buffalo Forge Company, Buffalo, N. Y., have recently received an order for a fan system heating and ventilating apparatus to be shipped to Japan. It is to be used at the Imperial Crown Prince Palace, now building in Tokio. The fan is of special design and has an engine of the United States Government type direct attached for driving it. Each section of the heater is valved separately. The arrangement is such that either live or exhaust steam may be used entirely or any portion of live or exhaust steam as may be desired. This company at the present time have in course of construction another large order from the Japanese Government, including pressure blowers for foundry work, &c.

The Missouri Malleable Iron Company, East St. Louis, Ill., are building an addition to their foundry 140 x 150 feet, with a furnace building attached, 50 x 40 feet. Also an addition to their annealing room 75 x 110 feet. When the additions to the foundry are completed it will give them, it is believed, the largest foundry building under a single roof in the world. The building will be 665 x 140 feet, all of which is clear molding space, as the furnaces and cupolas are in separate buildings annexed to the foundry. At present about 600 hands are employed, and when the additions are completed the company expect to employ in the neighborhood of 800 hands. The large increase in the use of malleable iron for railroad work has made these additions necessary.

The Standard Boiler Company of Goshen, Ind., are arranging to remove their works to Harvey, Ill. The company will begin the construction of buildings at once, and will also begin the removal of their machinery and equipment to the new location. Their contract requires that they shall expend not less than \$5000 in the construction of a building and that they shall give employment to from 60 to 80 hands. The plant will go into operation by September 1.

The Bliss & Laughlin Company, manufacturers of shafting, Harvey, Ill., have secured more land for the purpose of enlarging their plant.

Alfred Marshall, representing the firm of the Marshall & Huschart Company, machine tool dealers, of Chicago, has made a proposition to the Cincinnati Planer Company to handle the entire output of the concern. The latter company, however, owing to the large number of orders booked for their planers for shipment, both domestic and abroad, are unable to accept what under other circumstances would have been a most advantageous proposition.

The Barker & Chard Machine Tool Company, Cincinnati, Ohio, who were recently burned out at Butler and Pioneer streets, have decided to continue at that location. The plant was so thoroughly damaged that it was deemed useless to repair; but the owners have decided to completely rebuild at an expenditure of over \$25,000, and the company, as stated, will take possession as soon as possible.

Wm. H. Wood, hydraulic engineer, of Media, Pa., reports that he has recently received orders for two of his patent hydraulic riveting plants for the Aultman & Taylor Machinery Company of Mansfield, Ohio.

The National Foundry Company of Erie, Pa., have been incorporated with a capital of \$100,000.

The American Machine Company, with a capital of \$300,000, have been organized at Roanoke, Va., with the following officers: President, J. A. Jamison; first vice-president, N. P. Perkins; second vice-president, J. O. B. Palmer; secretary-treasurer, C. A. Moomaw; attorney, James P. Woods; directors, C. M. Armes and T. E. Jamison. The object of the new company is to introduce the Perkins tobacco granulating machine in foreign countries.

Chambersburg Engineering Company of Chambersburg, Pa., have recently made the following shipments: Six hydraulic pinch riveters to the Pressed Steel Company of Pittsburgh; also two 1500-pound steam drop hammers, five 100-inch gap patent hemp packed riveters to the same company; one 17 x 18 engine, one 16 x 15 engine, two 20 x 18 engines, one for Nova Scotia; one 8½ x 10 engine, one 11 x 12 engine, one 800-pound steam hammer to Shiffler Bridge Company, Pittsburgh; one 600-pound hammer to Vera Cruz; one 200-pound hammer, one 600-pound drop and two 800-pound single frame hammers to the Baker Forge Company of Pittsburgh; one 6000-pound hammer for Moran Bros. & Co. of Seattle, Wash. They also have under way a great number of other sizes, including a 6-ton hammer for Duquesne Forge Company of Rankin, Pa. They are working night and day to complete their orders.

The Bullock Bellows Company of Cleveland, Ohio, have been incorporated for the manufacture of bellows, forges, machine devices, &c., with a capital of \$25,000. The incorporators are F. C. McMillen, R. B. Moser, A. S. Dennis, H. E. Mudra and S. O. Kurnish, all of Cleveland.

The Western Forge Company of East St. Louis, Mo., have been incorporated to manufacture steel castings, forgings and machinery by Thomas L. Fekete, John Wilson and George S. Foster.

Hardware.

The Belding-Hall Mfg. Company, Chicago, state that the report is untrue that they have just received an order for 15,000 refrigerators. This item is now on its rounds through the daily press. They are about to build an addition to their factory at Belding, Mich., however, to meet the demand for their products.

The works of the Puget Sound Wire Nail & Steel Company, Everett, Wash., will be dismantled, as the American Steel & Wire Company have decided to discontinue manufacturing at that point. They have been operating 75 nail machines, having a wire drawing plant in connection. The machines will be removed to the American Company's works at San Francisco. The Sumner Iron Works will take the buildings, engines, &c., to use for general manufacturing purposes.

Reports are current that the wire nail factory at Anderson, Ind., formerly operated by the Arrow Company of Cincinnati, but which has long been idle, is to be put in operation as an independent plant. The names of C. P. Garvey, C. H. Garvey and L. H. Gedge are connected with these reports. They were formerly in the management of the American Wire Nail Company. The Arrow factory has 75 nail machines, most of which are adapted to making list nails.

The McKeesport Springless Lock Company of McKeesport, Pa., have been organized and will manufacture a springless lock, having, it is claimed, only one bolt and no spring. The concern have leased the casket factory building at Versailles, near McKeesport.

The new enameled ware addition, which the Lalance & Grosjean Mfg. Company are erecting east of their present factory buildings at Woodhaven, L. I., is making rapid progress. The structure is now being roofed in and will be ready for occupation within a few weeks. This addition to their facilities will give the concern largely increased producing capacity of enameled ware, and enable them to make an output of over 100,000 pieces a day. The new building covers an area 400 x 200 feet in extent and is conveniently located alongside the tracks of the Long Island Railroad. The work on the building has been pushed rapidly, as the company are anxious to avail themselves of it at the earliest possible date. The demand for L. & G. enameled ware has been so heavy this season that the present capacity of their factory—large as it is—is entirely inadequate to meet it. While the large bulk of orders come from the United States, the company's goods are being shipped to all quarters of the globe.

J. S. Bennett, 164 Lisgar street, Toronto, Ont., has established a factory for the manufacture of the Heller steel shelf boxes, screw cases, &c.

At the last annual meeting of the Norton Door Check & Spring Company the stockholders voted to discontinue the business of manufacturing and selling door checks, and to wind up their affairs.

The Osborn Mfg. Company, 44-60 High street, Cleveland, Ohio, notwithstanding the doubling of their capacity during the spring and the recent occupation of a floor in an adjoining building, adding several thousand square feet more to their floor space, report themselves nearly 60 days behind orders on their line of brushes, brooms and foundry supplies, hardware specialties, &c. They are also doing some export business, and note an increasing number of orders from this source. They advise us that they are intending to add materially to their assortment of hardware specialties. Their catalogue, No. 91, recently issued, gives an idea of the varied line of brushes, brooms and specialties which they are making at the present time.

Turner & Seymour Mfg. Company, Torrington, Conn., manufacturers of heavy and light castings and light metal goods, including the well-known Star Jack chains, safety and plumbers' chains, have laid foundations for an addition to their works which will double their present foundry capacity. The new building is expected to be completed September 1.

The Wallace Barnes Company, Bristol, Conn., who were established in 1857 as manufacturers of coiled springs, advise us that they are rushed with orders, but are still able to give particular attention to supplying manufacturers with small sheet steel and wire springs of every description.

The Royal Polished Steel Roaster Company, Troy, Ohio, have just completed a new building two stories high, and are installing additional machinery that will greatly increase their facilities for the production of the new Royal polished steel roaster. A number of other new specialties will be added. Trade is improving in this country, while the foreign demand is also increasing, a heavy shipment of roasters having recently been made to England.

The Clay Stamping Company, Cleveland, are building a large addition to their factory, doubling its size and capacity. Enlargement was made necessary on account of the growth of their business.

Miscellaneous.

The J. W. Garrett Brass Foundry Company of St. Louis, Mo., have been incorporated, with a capital of \$10,000, by Charles Erickson, Frank Haggens and Belle Garrett.

The Kennedy Perfect Oiler Company of Carbondale, Pa., have been incorporated for the manufacture of machinery and me-

chanical appliances, with a capital stock of \$125,000. The directors are John J. Kennedy, P. A. Correll, M. F. Morton, John B. Shannon, John F. Reynolds, John E. Roche and Frank P. Reynolds.

The United States Radiator Company of West Newton, Pa., have purchased the agricultural works of the A. T. Stewart Company at that place.

The Pittsburgh Spring Company of Pittsburgh have made application for a charter of incorporation. Interested in the company is D. C. Clapp, at present treasurer of the Park Steel Company of Pittsburgh. It is understood that the Pittsburgh Spring Company are a reorganization of works now running.

Herbert H. Weaver, assistant general manager of Cambria Steel Company, and James A. Thomas of John Thomas & Son, have purchased from Henry Y. Hawes his interest in the fire brick works of A. J. Hawes & Son, at Johnstown. The works are valued at \$210,000, Mr. Hawes interest being 10-28 of the whole.

The American Safe & Lock Company of Elizabeth, Pa., have applied for a charter of incorporation, with a capital of \$200,000, and will take over the abandoned plant of the American Safe, Lock & Vault Company at Elizabeth. M. M. Garland, formerly president of the Amalgamated Association, but now collector of the port in Pittsburgh, is prominently identified with the new company. The old concern have been in receivers' hands for some time, and the receiver's sale of the plant has been confirmed by the court. The works have been overhauled and put in good condition.

The factory of the Illinois Can Company, 82 to 86 Superior street, Chicago, was burned on the 7th inst., with a loss of \$150,000. The company are large manufacturers of all kinds of tin packages, including highly decorated goods. A portion of the plant was saved, although the contents were badly damaged by water.

The A. T. Stewart Company have been organized and will build a plant in East Carnegie, near Pittsburgh, for the manufacture of plows and other agricultural implements. The company are capitalized at \$50,000, and work on the building of the plant will be commenced at an early date.

The Sheffield Car Company of Three Rivers, Mich., report recent shipments of their standard section hand cars with rolled steel wheels to the government railways of Russia; also of their gasoline motor car to Cuba. These latter are light cars designed for roadmasters' use in looking after their track work. They will carry three men and, it is stated, can be removed from the track at any point at an instant's notice.

The Indianapolis Drop Forging Company, located at the intersection of Downey street and J. M. I. R. R., Indianapolis, Ind., have just completed an addition to their plant, 55 x 150, and will use it for a forging room, their business having increased so rapidly as to compel them to enlarge the plant. They have in contemplation the manufacture of a new wrench, which will be placed on the market shortly; they also expect to get out a line of golf clubs. They have orders ahead for 60 days or more, which is unusual, as this ordinarily is their dull season.

At a recent stockholders' meeting of the Star Brass Works, Kalamazoo, Mich., it was decided to increase their capital stock from \$10,000 to \$20,000, it being necessary to double their capacity to care for their increasing trade.

The Aird-Don Company of Troy, N. Y., have been incorporated with a capital of \$150,000 to manufacture and deal in iron and steel and plumbers' supplies. The directors are Henry Aird of Cohoes; John Don, Henry A. Aird and J. Don Ennis, all of Troy.

The Shoenerger Steel Company Department of the American Steel & Wire Company of Pittsburgh, whose extensive coal lands adjoin West Latrobe, Pa., have broken ground for the erection of 300 coke ovens. A new shaft will be put down and a new siding built, connecting with the Unity branch of the Pennsylvania Railroad.

Peters Creek Natural Gas Company and the Relief Gas Company of Washington, Pa., have been consolidated under the charter and name of the Relief Company, and the capital stock has been increased to \$60,000.

The Uniontown Acme Radiator Company of Uniontown, Pa., have been granted a charter of incorporation, with a capital of \$28,000. The directors are Fuller Hogsett, A. L. Moser, J. M. Husted, L. C. McCrum and I. W. Semans, all of Uniontown.

The casting plant at the Addyston Pipe & Steel Foundry, near Cincinnati, was completely gutted by fire July 17, and everything except the standing cranes and walls of the building destroyed.

The Youngstown Specialty Mfg. Company of Youngstown, Ohio, manufacturers of sheet metal specialties, are operating their factory full time. In one day recently this concern turned out 35,000 fruit cans on one line of machinery, this product, however, not representing their entire output. This concern possess and operate automatic equipment for the manufacture of tin fruit cans, by which it requires only four and one-half minutes from the time the tin leaves the box in which it is received until the can is all completed and packed in the car ready for shipment.

The Iron and Metal Trades.

Every market report deals with the story of the scarcity of material and the advancing tendency in prices for delivery during the next four or six months. Values are exceedingly firm for the balance of this year, and the possibility of higher prices is being faced. Complaints of delays in deliveries continue frequent, particularly so far as old low priced contracts are concerned. Some large concerns, however, report that they are beginning to catch up a little.

Some consumers are beginning to face the question of a supply of material for the first half of next year. The conviction seems general that it is safest to cover for any contracts taken, but thus far the quantities involved seem to be moderate. There has been some buying of Pig Iron for 1900, but so far as we can ascertain good sound concerns are having prices named to them considerably below those now prevailing. This insures to the makers a very handsome profit on a part of their tonnage.

A glance at our table of Comparison of Prices shows that since July, 1898, values on nearly the whole line of raw and finished materials have just about doubled, and in some cases the rise has gone beyond that. The feeling in the trade is that no reaction is likely for deliveries for this year, and that what readjustment may come for 1900 delivery, particularly for the first half, it is likely to leave values on a plane which will be highly remunerative to well equipped, well located and well managed concerns. Under these circumstances the harvest in sight for the balance of 1899 seems safe.

The really crucial fact in the situation, and the one which differentiates it from the last boom of 1879-1880 and from the "soda water rise" of 1895, is that the enormous development of the demand is world wide, and that there is no danger of foreign makers pouncing upon our market.

There have been some round sales of Bessemer Pig in the Pittsburgh district at \$20, Valley furnace, and of Basic Pig in the East at a sharp advance. In Steel moderate quantities have sold in the central West at top prices, and one large block has been placed for New England delivery by a tidewater Steel plant.

A good deal of new work is coming up in Structural Material, Plates, Bars and the long line of Finished Products.

The Wire industry records another advance of \$3 per ton, and Cut Nails have been put up in sympathy with Wire Nails.

The settlement of the Tin Plate wages question has been followed by an advance of 50c. per box in the price.

The daily newspapers have made much of the alleged new contract for 30,000 tons monthly of Steel Plates between the Carnegie Steel Company and the Pressed Steel Car Company. When this spring the former company gave up the plan to build car works of their own, the arrangement was made to supply the Plates on a sliding scale for the newly organized consolidation of the Schoen and Fox interests. It was estimated then that when the new plant at McKee's Rocks, Pa., was completed the requirements would be 1000 tons per day. The matter is chiefly of interest as showing how rapidly an enormous tonnage of Steel for a new purpose is developed in this country.

A Comparison of Prices

At date, one week, one month and one year previous.

Advances Over the Previous Month in Heavy Type. Declines in Italics.

July 19, 1899. July 12, 1899. June 21, 1899. July 20, 1898.

PIG IRON:

	July 19, 1899.	July 12, 1899.	June 21, 1899.	July 20, 1898.
Foundry Pig, No. 2, Standard, Philadelphia	\$19.75	\$19.50	\$17.50	\$10.00
Foundry Pig, No. 2, Southern, Cincinnati		17.75	16.50	9.00
Foundry Pig, No. 2, Local, Chicago	19.00	18.50	18.00	11.00
Bessemer Pig, Pittsburgh	20.75	20.75	18.65	10.25
Gray Forge, Pittsburgh	17.50	17.50	16.25	9.00
Lake Superior Charcoal, Chicago	21.50	21.50	21.00	11.50

BILLETS, RAILS, ETC.:

Steel Billets, Pittsburgh	33.00	33.00	31.50	14.50
Steel Billets, Philadelphia	35.50	34.50	34.00	16.50
Steel Billets, Chicago		....	32.50	15.75
Wire Rods, Pittsburgh		....	....	20.00
Steel Rails, Heavy, Eastern Mill	28.00	28.00	28.00	17.00
Spikes, Tidewater	2.00	1.90	1.80	1.40
Splice Bars, Tidewater	1.90	1.80	1.70	1.05

OLD MATERIAL:

O. Steel Rails, Chicago	15.00	15.00	13.00	8.25
O. Steel Rails, Philadelphia	16.50	16.00	14.00	9.75
O. Iron Rails, Chicago	18.50	18.50	17.50	12.50
O. Iron Rails, Philadelphia	20.00	20.00	19.50	12.00
O. Car Wheels, Chicago	15.50	15.50	16.00	11.50
O. Car Wheels, Philadelphia	16.50	16.00	16.00	10.00
Heavy Steel Scrap, Chicago	13.00	13.00	12.00	8.00

FINISHED IRON AND STEEL:

Refined Iron Bars, Philadelphia	2.00	2.00	1.95	1.00
Common Iron Bars, Youngstown	1.85	1.85	1.75	0.92 $\frac{1}{2}$
Steel Bars, Tidewater	2.10	2.10	2.00	1.05
Steel Bars, Pittsburgh	2.05	2.00	2.00	0.95
Tank Plates, Tidewater	2.60	2.60	2.45	1.20
Tank Plates, Pittsburgh	2.50	2.40	2.35	1.07 $\frac{1}{2}$
Beams, Tidewater	2.15	2.15	1.85	1.30
Beams, Pittsburgh	2.00	2.00	1.75	1.15
Angles, Tidewater	2.15	2.15	1.85	1.20
Angles, Pittsburgh	2.00	2.00	1.75	1.05
Skelp, Grooved Iron, Pittsburgh	2.35	2.15	2.10	1.05
Skelp, Sheared Iron, Pittsburgh	2.50	2.35	2.25	1.07 $\frac{1}{2}$
Sheets, No. 27, Chicago	3.15	3.05	3.05	1.95
Sheets, No. 27, Pittsburgh	3.00	3.00	2.85	1.85
Barb Wire, f.o.b. Pittsburgh	3.10	2.95	2.95	1.65
Wire Nails, f.o.b. Pittsburgh	2.50	2.35	2.35	1.25
Cut Nails, Mill	2.20	2.05	2.05	1.05

METALS:

Copper, New York	18.50	18.25	18.00	11.50
Sperler, St. Louis	5.90	5.90	5.70	4.80
Lead, New York	4.60	4.55	4.45	3.92 $\frac{1}{2}$
Lead, St. Louis	4.57\frac{1}{4}	4.45	4.35	3.85
Tin, New York	28.90	27.87 $\frac{1}{4}$	25.65	16.55
Antimony, Hallett, New York	10.00	10.00	10.00	9.00
Nickel, New York	38.00	38.00	38.00	34.00
Tin Plate, Domestic, Bessemer, 100 lbs., New York	4.55	....	4.05	2.85

Chicago. (By Telegraph.)

Office of *The Iron Age*, 805 Fisher Building, Chicago, July 10, 1899.

Nothing yet appears of a character to change the record being made by this extraordinary year. Prices continue to advance. Wire products, including Nails, have been marked up another \$3 per ton. Steel Rails are \$1 higher. Pig Iron has advanced from 25c. to \$1 per ton. Scarcity of materials is reported in every direction. The consumption seems to be increasing. Mills are far in arrears in making deliveries on contracts, and many consumers are still to be supplied. Implement manufacturers are continuing to come in the market, making contracts for materials. They have in other years almost entirely placed their season contracts by this time, but this year they have not been in a hurry, and it now looks as if some of the belated ones would have difficulty in securing what they need. The outlook in the West was never more encouraging. Crop prospects are very flattering, although the critical period has not quite arrived.

Pig Iron.—Those having Iron to sell have found a fair demand; contracts have been made up to 2500 tons, for delivery into next year. The demand for prompt shipment is sharp, but very little Iron is to be had in this way. The consumption is steadily increasing, consumers making preparations to build their own foundries because they are having difficulty in securing satisfactory supplies from existing sources. The Spring Valley Furnace, in Wisconsin, was put in blast last week, and is now making Coke Iron. All the furnaces in this territory making Iron for the general foundry trade are now in blast. Prices have advanced during the week on almost all grades of Iron, and our quotations are changed accordingly. High Silicon Iron is exceedingly scarce and prices are high and advancing. None is to be had for immediate delivery. We quote for cash as follows:

Lake Superior Charcoal	....	\$21.50 to \$23.00
Local Coke Foundry, No. 1	....	19.50 to 20.00
Local Coke Foundry, No. 2	....	19.00 to 19.50
Local Coke Foundry, No. 3	....	18.50 to 19.00
Local Scotch, No. 1	....	20.00 to 20.50
Ohio Strong Softeners, No. 1	....	20.80 to 21.50
Southern Silvery, according to Silicon	....	20.00 to 22.00
Southern Coke, No. 1	....	19.75 to 20.25
Southern Coke, No. 2	....	18.75 to 19.00
Southern Coke, No. 3	....	18.25 to 18.50
Southern Coke, No. 1 Soft	....	19.75 to 20.25

Southern Coke, No. 2 Soft.....	18.75	to	19.00
Foundry Forge.....	17.25	to	17.75
Gray Forge and Mottled.....	17.25	to	17.75
Southern Charcoal Softeners.....	20.00	to	22.00
Alabama and Georgia Car Wheel.....	20.50	to	21.50
Malleable Bessemer.....	21.00	to	22.00
Standard Bessemer.....	21.00	to	22.00
Jackson County and Kentucky Slivery, according to Silicon.....	25.00	to	27.00

Bars.—Manufacturers have taken orders aggregating a heavy tonnage of Bar Iron, making up well for the quietness of the previous week. Some large contracts are included in this business. The implement manufacturers are still coming into the market, gradually making up their minds that it will be necessary for them to pay the prices now asked, or probably be obliged to pay still higher prices in the future. The Bar Iron situation is now unusually strong, as the leading manufacturers are completely sold up for the coming three months and have considerable business booked even beyond that time. Quotations are maintained at 1.85c. to 1.95c., Chicago, for mill shipments of Common Iron. A fair demand is noted for Soft Steel Bars. Some implement contracts have been placed for these also. The local mills are selling more than their output from week to week. Prices on mill shipments are continued at 2c. to 2.15c., Chicago. Hoops are firmly held at 2.40c., base, for Bands. Jobbers have had a continued large trade and are having great difficulty in keeping up their assortment. The largest houses report that hardly a shipment is made in which a shortage is not found requiring an apology, with the hope that the omission can soon be supplied. Quotations on small lots from stock are continued at 2.15c. upward for Bar Iron, 2.10c. upward for Soft Steel Bars, 3.25c. for large lots of Norway and Swedish Iron, and 3.50c. for small lots.

Structural Material.—The orders recently entered include 3500 tons of Bridge Material for a Western railroad, and 1200 tons for buildings. A good run of small orders is reported, and manufacturers are getting still further behind on deliveries. An interesting matter in connection with this branch of trade is the preparation of plans for a palace of modern construction for the Mikado of Japan in a Chicago architect's office, which will require about 3000 tons of Steel. Mill shipments are quoted as follows, Chicago delivery: Beams, Channels and Zees, 15 inches and under, and Angles 3 to 6 inches, 2.15c.; Beams, &c., 18 inches and over, and Angles over 6 and under 3 inches, 2.25c.; Tees, 2.20c.; Universal Plates, 2.65c. Store prices take the usual advance above prices for mill shipment.

Merchant Pipe.—While the demand for mill shipment is light in this territory the mills are making poor progress in catching up on deliveries, and stocks in warehouses are more badly broken than before. It is difficult to get any quantity of the standard sizes of Pipe. Prices on mill shipment are continued at 50 and two 10's, but this practically means nothing to the urgent consumer. Merchant Steel Boiler Tubes are now quoted in small lots, 1 1/4 to 1 3/4 inches, inclusive, 40 per cent. off; 2 to 2 1/2 inches, inclusive, 50 per cent. off; 3 inches and larger, 55 per cent. off.

Plates.—Warehouse business continues to be the special feature of the local Plate trade. The percentage of such business, as compared with mill shipments, is steadily growing. Jobbers are not only supplying a large part of local trade, but are making heavy shipments East and South. Hopes are entertained that the congestion at mills may be relieved in a little time by new mills starting up, but prospects are uncertain, as orders have probably been taken in advance which will keep these mills busy for some time. The Boiler makers of this city struck on Monday for an eight-hour day and an advance in amount received per hour. This will cause some interruption to local business, as the employers are disposed to make a strong fight against the workmen's demand. Jobbers quote Tank Steel from stock at 3c. upward, and Flange 3.25c. upward. Mill shipments are quoted for late-summer delivery at 2.80c., Chicago, for Tank Steel, 2.90c. for Flange, 3c. for Marine and 3 1/2c. to 5 1/2c. for Fire Box.

Sheets.—The Sheet trade has undergone some change, and prices are considerably firmer. Good orders have recently been placed for both Black and Galvanized Sheets, filling up most mills, and it now seems to be impossible to secure any lower price on mill shipments than 3.15c., Chicago, for No. 27 Black Sheets, and 70 and 5 per cent. off, with 15c. freight allowance, on Galvanized Sheets. Jobbers have advanced their quotations on small lots of No. 27 Black Sheets to 3.45c., while Galvanized is continued at 70 per cent. off.

Merchant Steel.—A very good demand is reported, quite a number of implement contracts having been placed during the week and others being under negotiation. A rather unusual feature of this trade is the disposition of Steel manufacturers to try to reduce the ton-

age of contracts made with their customers. Tool Steel is being taken in liberal quantities by all classes of dealers and consumers. Mill shipments, Chicago delivery, are quoted as follows: Smooth Finished Machinery Steel, 2.70c. to 2.80c.; Smooth Finished Tire, 2.45c. to 2.55c.; Open Hearth Spring Steel, 3.20c. to 3.30c., base; Toe Calk, 2.95c. to 3.15c., base; Ordinary Tool Steel, 6 1/2c. to 7 1/2c.; Specials, 13c. and upward. Jobbers are asking the usual advances above mill prices.

Billets and Rods.—Inquiries for Billets continue to be received, but no transactions are reported, as local makers have none for sale. Wire Rods have been sold in moderate quantities at \$45. Considerable inquiry is developing for this class of material, some for export.

Rails and Track Supplies.—Price have been advanced on Standard Section Rails, and the basis for current quotations is understood to be \$31, Chicago, and \$35, Colorado. Small lots only have been sold during the week. Considerable inquiry is reported and negotiations are under way. Sales of Light Rails aggregated about 1200 tons. Quotations on Light Sections are maintained at \$30 upward, according to weight. Track Supplies are quoted as follows: Fish Plates, 1.70c. to 1.80c.; Spikes, 2.50c.; Track Bolts, with Hexagon Nuts, 3.10c. to 3.15c.; Square Nuts, 2.90c. to 3c.; Steel Links and Pins, 2.25c. to 2.30c.; Iron Links and Pins, 2c.

Old Material.—The market is now rather quiet. Dealers report unchanged prices, the situation being still under the control of consumers. Dealers' selling quotations are as follows, per gross ton: Old Iron Rails, \$18.50; Old Steel Rails, mixed lengths, \$15; Old Steel Rails, long lengths, \$15.50; Relying Rails, \$19 to \$20; Old Car Wheels, \$15.50; Heavy Melting Scrap, \$13; Mixed Steel, \$11. The following selling prices are per net ton: No. 1 Railroad Wrought, \$16 to \$16.50; Dealers' Forge, \$11.50 to \$12.50; Fish Plates, \$17; No. 1 Mill, \$8.50 to \$9; Heavy Cast, \$12 to \$12.50; Stove Plates, \$8 to \$8.25; Iron Car Axles, \$19 to \$20; Horseshoes, \$12 to \$12.50; Cast Bearings, \$6.50; Steel Axle Turnings, \$8.25; Iron Axle Turnings, \$8.75; Machine Shop Turnings, \$7.50 to \$8.

Metals.—All metals are somewhat higher. Carload lots of Lake Copper are held at 18 1/2c., and Western at 17 1/2c. Spelter is much stronger at 6.12 1/2c. Pig Lead is quoted at 4.55c., and is fairly active with very light offerings. The courts have just decided that the eight-hour law in Colorado is unconstitutional, and the smelting companies are at liberty to make terms with their men.

Tin Plate.—The American Tin Plate Company came to an agreement with their workmen last week on an advance of 15 per cent. on last year's wages schedule. Prices of Tin Plate were immediately advanced 50c. per box on base sizes and grades to partly cover the increased cost. The new manufacturers' price is \$4.65 on full weight Cokes, which is an advance of but 12 1/2 per cent. A fair demand for Tin Plate was experienced during the week, which has not been checked by the advance. Orders are being received as freely as before the new prices were made. Jobbers have advanced their rates to correspond with the new prices made by manufacturers.

The Chicago sales agencies of the American Steel Hoop Company and the Aetna-Standard Iron & Steel Company have been united under the management of H. L. Green, whose office is located in the Marquette Building.

Philadelphia.

Office of *The Iron Age*, Forrest Building, Philadelphia, Pa., July 18, 1899.

The Iron market has been somewhat quiet during the past week, but prices have in all cases been firm, and in some they are a trifle higher. This is particularly the case with Pig Iron, which is not only a shade dearer, but is scarcer than ever. The statistical position, as shown by *The Iron Age* in its last issue, is conclusive on that point. The uppermost consideration at this time, however, is in regard to the near future. With less than one week's supply in first hands, prices might be put to almost any figure, but producers are more concerned in trying to keep their customers supplied with Iron than in trying to advance prices. Higher prices are not regarded with favor by sellers or any one else, as it is almost certain that anything beyond \$20 could not be maintained for any length of time. Nevertheless, the feeling at \$20 is as strong as it was at \$15; and \$25 is regarded by some good judges of the market as by no means improbable. In the more advanced products there are some slight indications of fuller supplies. Muck Bars, for instance, are not run after as they were a couple of weeks ago. Sellers ask \$37 to \$38, but buyers are not bidding much over \$35, and even then they are somewhat strict in their requirements. Billets have sold as high as \$36.50, however, and

are scarce even at that figure. Bars are also in better supply, not at all weak, but there is less trouble to get deliveries, a feature which buyers will probably be prompt to recognize. General appearances indicate that prices are about as high as they are likely to go for a little while, and although there is no particular reason for expecting a decline, yet the chances favor the idea of hesitancy for a brief period, and toward September, if nothing unfavorable develops, it is believed that another upward movement will be seen. Meanwhile there is an enormous volume of business in hand, but both buyers and sellers show a disposition to trade within close limits, pending further developments.

Pig Iron.—The volume of business has been somewhat limited, due partly to the extreme scarcity of Iron, but more probably to the fact that other markets outbid the local trade in the struggle to secure material. Prices are higher than they were a week ago, and \$20 for deliveries to nearby consumers is about as low as No. 2 X Foundry can be bought for. Some Iron has been bought for less money, and some has been sold for more, but on the other hand, outside markets have diverted a good deal of material at prices equivalent to \$20.75 to \$21 here, so that local consumers will probably have to pay more money, unless other markets develop weakness, of which there are no indications at the moment. There is no pressure, however, to either buy or sell in large lots, so that sales have been mostly for prompt shipments. Some business for next year's deliveries is under negotiation at prices about \$1 per ton below those now ruling, but trading is not heavy, the future being too uncertain to warrant large transactions at the quotations now ruling. Prices are about as follows for seaboard or nearby deliveries: No. 1 X Foundry, \$20.50 to \$21; No. 2 X Foundry, \$19.75 to \$20.50; No. 2 Plain, \$19 to \$19.25; Standard Mill Iron, \$18 to \$18.25; Basic (nominal), \$20 to \$20.50; Bessemer, \$20 to \$21.

Billets.—Only small lots are traded in, and at prices varying from \$35.50 to \$36.50. The supply does not increase much, and consumers have to pay almost any price that holders see fit to name.

Muck Bars.—A good deal of negotiating has been done, but without much result so far. Holders appear to have set their figure beyond the buyer's limit. They are now talking about \$36, but \$34 to \$35 is nearer to what buyers seem inclined to pay.

Plates.—The demand is active at full prices, and quite a number of orders have been cut down to about half of what the buyers asked for. Inquiries are received from all sections of the country, and from all classes of buyers, showing that the activity is not confined to any class of consumers or to any section of country, all the various interests being employed to their fullest capacity. Prices are firm at the following figures for seaboard or nearby deliveries, for carload lots and upward: 2.60c. to 2.70c. for $\frac{1}{4}$ -inch and thicker; Shell, 2.75c. to 2.80c.; Flange, 2.90c.; Fire Box, 2.95c. to 3c.

Structural Material.—Business is very active in this department, and all the material that can be gotten out is promptly taken up. As yet there are no signs of slackening in any of the various branches, so that prices are strong at full quoted rates—viz.: Beams and Channels, 2.15c. to 2.25c.; Angles, 2.15c. to 2.40c.; Tees, 2.20c. to 2.25c.; Deck Beams and Bulb Angles, 2.40c. to 2.50c.

Bars.—There is a good demand, but the supply is somewhat larger, consequently there is less urgency to place orders. Mills are heavily loaded with business, however, so that prospects indicate full employment for a long time to come. Prices steady, as last quoted—viz., for deliveries at seaboard or nearby points: Ordinary Bars, 1.90c. to 1.95c.; Refined Bars, 2c. to 2.10c.; Test Bars, 2c. to 2.20c.; Steel Bars, 2.10c. to 2.15c.

Sheets.—Business is very active in this department and mills have all they can do and more than they can do to meet buyers' requirements. There is plenty of inquiry for long deliveries, but makers try to keep within 60 or 90 days, at prices about as follows, for best Sheets (Common Sheets, two-tenths less): No. 10, 3c. to 3.10c.; No. 14, 3.20c.; No. 16, 3.30c.; Nos. 18-20, 3.40c.; Nos. 21-24, 3.50c.; Nos. 26-27, 3.60c.; No. 28, 3.70c. to 3.80c.

Old Material.—There is a good demand, especially for Steel, which commands more money and looks like going higher. All descriptions are doing better, however, with sales at prices about as follows, for deliveries in buyers' yards. Cast Borings, \$11 to \$11.25; Wrought Turnings, \$12.50 to \$12.75; Machinery Cast, \$13.75 to \$14.25; Old Car Wheels, \$16.50 to \$17; Heavy Steel Scrap, \$15.50; Steel Rails, \$16.50 to \$17; Iron Rails, \$20 to \$21; No. 1 Railway Scrap, \$19.50 to \$20.50; Iron Axles, \$23 to \$25; Steel Axles, \$17 to \$17.50.

(By Telegraph.)

Pig Iron is stronger. Sales have been liberal at \$20 to

\$20.50 for No. 2 X Foundry. A block of Basic was taken at \$21 for a nearby mill.

Merchant & Co. of Philadelphia have just made a shipment of 30,000 pounds of Seamless Drawn Condenser Tubes to Glasgow, Scotland.

Cincinnati. (By Telegraph.)

Office of *The Iron Age*, Fifth and Main streets, CINCINNATI, July 19, 1899.

The market throughout the past week has followed the only road which was possible for it under present circumstances. While the demand for everything except prompt delivery stock has been rather light, yet it has been enough to keep prices strong and advancing. Selling continues for delivery through next June at a range of 50c. or possibly 75c. Some little Iron might be had at 25c. less than minimum quotations and some selling above the maximum. To-day's quotations, however, very fairly represent the market. No big trades were reported last week, and the inquiry in the early part of it was light. Yesterday and to-day, however, inquiry was brisker. Soft Irons are very scarce and for delivery this year are exceedingly hard to get. Forge Irons are not in demand as they were recently, and hence not quite in step with the market. The situation is a sellers' one from every standpoint and the price-list has not yet stopped climbing. We quote, f.o.b. Cincinnati:

Southern Coke, No. 1	\$19.10 to \$19.25
Southern Coke, No. 2	17.75 to 18.25
Southern Coke, No. 3	17.00 to 17.50
Southern Coke, No. 1 Soft	19.00 to 19.25
Southern Coke, No. 2 Soft	17.75 to 18.25
Southern Coke, Gray Forge	16.25 to 16.50
Southern Coke, Mottled	16.25 to 16.50
Ohio Silvery, No. 1	24.00 to 25.00
Ohio Silvery, No. 2	22.00 to 23.50
Lake Superior Coke, No. 1	19.00 to 20.00
Lake Superior Coke, No. 2	18.50 to 19.50

Car Wheel and Malleable Irons.

Standard Southern Car Wheel	\$19.00 to \$20.25
Lake Superior Car Wheel and Malleable	21.50 to 22.50

Plates and Bars.—The market is very strong and unchanged. Business is active and material scarce. We quote f.o.b. Cincinnati: Bars, wholesale, 2c. with half extras, 2.15c. with full extras; Bar Angles, 2.30c. for $\frac{1}{2}$ -inch and larger; Sheets, No. 10, 2.95c.; No. 27, 3.35c.; Plates, 2.60c. to 2.75c.

Old Materials.—Market is strong and quiet, with a very fair volume of business. We quote, f.o.b. Cincinnati: No. 1 Wrought Iron Railroad Scrap, \$16 to \$16.50; Cast Scrap, \$11 to \$12; Axles, \$19 to \$20; Iron Rails, \$19 to \$20; Car Wheels, \$14.50 to \$15.

St. Louis. (By Telegraph.)

Office of *The Iron Age*, 512 Commercial Building, ST. LOUIS, July 19, 1899.

Pig Iron.—A 25c. increase is not looked upon as an advance in present days, yet quotations below show that difference over last week's prices. Orders have not been in great number nor of heavy tonnage, but nevertheless have somewhat surprised sellers agreeably. It would seem that founders have need to melt more Iron to meet their trade. Scrap stocks are said to be on the decrease, and yet the high prices have stimulated the search for all classes of Cast Iron for remelting. Prices for Pig Iron are firm and it is reported that on present basis there is covering for the first half of next year. Decrease in producing capacity is looked for during July and August, as stacks at present in blast will doubtless blow out for repairs. This will do nothing to better conditions, as despite the fact that furnaces in action July 1 had a greater output by nearly 10,000 tons over those reported June 1, the stocks show a decrease of about 65,000 tons compared with June 1. Ohio Softeners are seen to advance constantly and a decided increase is looked for covering spring business. We quote for cash, f.o.b. cars St. Louis, as follows:

Southern No. 1 Foundry	\$19.50 to \$19.75
Southern No. 2 Foundry	19.00 to 19.25
Southern No. 3 Foundry	18.00 to 18.25
No. 1 Soft	19.50 to 19.75
No. 2 Soft	19.00 to 19.25
Gray Forge	17.00 to 17.25
Mottled	16.50 to 16.75

Bar Iron.—The sales tonnage is about in line with nearby consumption. This does not mean that reasonable foresight is not shown in providing for regular needs, but the speculative element is not a present factor. Mills are kept busy filling orders and every indication points to a regular business being done for the balance of the year. Prices show no change and mills quote Bar Iron at a base of 1.90c., East St. Louis. Jobbers' prices are from 2.15c. to 2.25c., base, according to quality.

Rails and Track Supplies.—Business is only fair and easy as to demand. No change has occurred in prices, although some mills are naming slight advances on price of Spikes named below. We quote as follows: Splice Bars, 3c.; Track Bolts, with Square Nuts, 3c.; with Hexagon Nuts 3.15c.; Spikes, 2.25c. to 2.50c.; Iron and Steel Links and Pins, 2.20c.

Pig Lead.—Advices to-day are not encouraging as to early settlement of miners' strike in the West and even when the labor matters are adjusted it may take weeks to bring the producers into the market. Prices are stiff, and while 4.57½c. is bid for Chemical, holders hesitate about selling even at 4.60c. This is said to be the highest price Lead has reached in some years, and conditions seem to indicate that it will keep around present prices for a short time at least. Lead Ore sold at better prices and an advance of \$1.50 was paid as against those prevailing a week ago. \$27.50 was the figure reached for 1000 lbs.

Spelter.—Firmness is felt in the Spelter market, and Smelters hold at from 5.90c. to 5.92½c. Heavy sales, amounting to 28 cars, have been made the past few days, and it is interesting to note that the principal transaction was closed by telephone with a point over 1000 miles distant.

Zinc Ore.—A calm feeling is noted in the principal district, and the top price is getting back to those obtaining before the miners shut down. Ore operators have been producing during the past week, although some are still temporarily out of the market. The basing price remains as last week, but the top price touched \$44.50 per ton.

Birmingham.

BIRMINGHAM, ALA., July 17, 1899.

During the past week the market changed very materially. The demand increased greatly and the volume of business was much larger than has been registered for some time past. It had a wide distribution and included all classes of buyers. There were several orders for round lots that were accepted for delivery up to next July. One significant feature of the market was a revival of interest in the export trade, for which some very healthy orders were placed. An increase in price was a natural result of the demand, but it was not strained, and ranged anywhere from 25c. to 50c. per ton. There were some good orders placed for the Soft grades, and Basic Iron had a fine run. It would be a difficult matter now to engage any Basic orders for the deliveries that have prevailed. The export orders included business with all the Continental countries ranking among the principal users of Iron as well as Great Britain. The demand can be classed as active and sharp. At the close of the week it can be said the interest of the domestic trade in Iron was very lively. The demand is attributed largely to the showing of *The Iron Age* of the condition of stocks. An appreciable reduction, when the buyers anticipated an increase or at least no decrease, is what turned the tide and accentuated the fear of a still greater scarcity. Everybody commenced to try and secure some before it was too late. It was a small matter to mark up Gray Forge to \$13.25, No. 3 Foundry to \$14.25 and No. 2 Foundry to \$15.25. The other grades participated, and higher prices prevailed in instances where circumstances justified it.

Concerning the reports in circulation as to consolidation of certain furnace interests, the play and the players have shifted, but the game has not ended. It is yet on, and at present writing there is every appearance of the Alabama Coal & Iron Company becoming a dominant factor in the affairs of the district. The fortunes of that indefatigable developer, H. F. De Bardeleben, have been at least partially, if not wholly, retrieved, and he is coming to the front and to throw his glove into the arena of competition to any one daring to accept the "gage." He and his associates have lately acquired anywhere from 50,000 to 100,000 acres of coal and Ore lands. The coal lands are in the Warrior basin, and their selection had the benefit of his thorough knowledge of the properties and of his long and practical familiarity with their value. Included in these lands are the Government donations of 25,000 acres each to the Girls' Industrial Institute and the Tuskegee negro school, of which Booker Washington is the principal. The lands are beyond Bessemer. To make them available for rapid development, a railroad will be built from Bessemer, penetrating them in all directions desirable. They will soon be hives of human industry. Coke ovens will be erected, and the production of Coke on a large scale will be undertaken. To utilize their Ore lands, mines will be opened and furnaces at Bessemer will be built. In connection with them a Steel plant is to rise. Then there is the rolling mill at Bessemer, controlled by parties interested in the aims here utilized, and

it is to enter into the combine. This is but a crude outline of what is contemplated. The man who conceived it and planned it and has so far guided it on its way to consummation has every faith in the successful accomplishment of the scheme. There are plenty of people here who have faith in his judgment and confidence in his ability to carry to a successful issue great enterprises. It will help Bessemer wonderfully (and he is largely interested there), galvanize it into new life, and give some value to the stock of the Bessemer Land & Improvement Company. But the scheme will occupy years in its progress toward development.

There is nothing special to say of the Steel plant. Colonel Shook epitomized the situation in the statement that we will be making Steel in 60 days if there are no further delays in delivery of material and in completion of contracts at their specific times.

The Alabama Coal & Iron Company are preparing to let important contracts for repairs to their three furnaces, which includes increased capacity, besides other important contracts, all of which evinces an intention to get to work with the least delay.

It was thought that the trouble at the mining camp at Isbukooda was about over, as new labor had taken the place of the strikers and the daily output was about normal. But under cover of darkness the new men were fired upon and some killed. This puts a new phase upon the trouble and will undoubtedly cause prompt and severe measures to be taken to stamp out such a spirit. A feeling of uneasiness is under the circumstances not unnatural. As the camp is composed mostly of negroes there is no "racial war" feature in the trouble. It is a case of "nigger against nigger," and of Mr. Nigger against the law, and the white men must see that the law is triumphantly vindicated. It is the only course left to insure security to person and property, and instill into a disorderly element a wholesome respect for the law.

Cleveland

CLEVELAND, OHIO, July 18, 1899.

Iron Ore.—Sales of Iron Ore are so few and involve quantities so small as to make them hardly worthy of consideration. It will be a month and possibly more before the sales agents will be able to ascertain whether their margin of stock is sufficient to enable a few additional sales of small lots and there is little or no disposition to take up the matter of supplies for next year, despite the activity in the Pig Iron market. The few sales which have been reported within the week were at prices ranging from \$1 to \$1.50 above association quotations. Meanwhile every effort is being strained to move from the mining districts to South Chicago and Lake Erie ports every ton of Ore which the vessels can possibly accommodate. The shippers in some instances during the past week succeeded in breaking the Ore rate from the head of the lakes to 90c., but they secured only a very few boats at that figure. Almost all charters have been made on the \$1 basis, and there is little doubt that the rate is there to stay. This figure is just double what it was at the same time in either 1898 or 1897, and that the vessel men have every confidence in its permanency is evidenced by the general scramble which is made for every Ore carrying vessel placed on the market. Several transfers of steel freighters now on the stocks are indicative of the same feeling, one vessel building at Detroit having been transferred a few days ago at a premium of over \$30,000. Even wooden tonnage, which was a few years ago considered practically valueless, is being eagerly picked up at prices which show an advance of fully 25 per cent. over those demanded at the opening of the season of navigation. Meanwhile exasperating delays resultant from strikes continue to be frequent. For instance, at the Carnegie docks at Conneaut, Ohio, a few days since the entire force, numbering close on to 1000 men, quit as the result of some fancied clash of authority between two of the officials in charge of the docks. Moreover the minor strikes and rumors of more general ones, from which the lower lake ports have not been entirely free at any time this season, continue to prove a source of uneasiness. Some of the furnace interests are complaining of a scarcity of Ore and the Illinois Steel Company at South Chicago are understood to be 250,000 tons short of the supply which they should have at hand at this season of the year. Generally accepted quotations on Ores are as follows: Magnetic and Specular, Bessemer, \$4; Non-Bessemer Specular and Magnetic, \$3.50; Red Hematite, Bessemer, \$4; Non-Bessemer Red Hematite, \$3.

Pig Iron.—The strength of the market has not been impaired in the slightest degree and almost the whole trend of activity seems to be along the line of delivery for the first half of 1900. The anxiety of consumers to secure necessary supplies of material does not diminish in the least and the situation remains pre-eminently a buyer's rather than a seller's market. Sales agents suggest that they do not care to commit themselves to any further

promises of supplies, only to be met by the rejoinder that the Iron must be secured regardless of price. At the same time there goes merrily on a constant fight to secure delivery, a problem almost as difficult of solution as to secure the commodity in the first place. The Bessemer Furnace Men's Association Executive Committee met at Cleveland last Saturday, but no determination as to price was made. The present indications are that it will be three or four months before any sales for the first half of 1900 are made. There is a disposition on the part of many of the members to await events. Sales of Foundry Irons for the first half of next year continue with an activity that bespeaks almost unlimited confidence. Nominally \$20 is the quotation for both Nos. 1 and 2. In almost every case, however, \$20 has been paid and one agency has marked No. 2 Foundry up to \$21 in an effort to prevent a too rapid reduction of stock. Some good sized sales of Southern Irons have been made in this territory of late. The quotations made are \$15.75 for No. 1 Soft and No. 1 Foundry, \$14.75 for No. 2 Soft and No. 2 Foundry, \$14.25 for No. 3 and \$13.25 for No. 4 and Gray Forge. All the quotations are Birmingham, the freight rate to this territory being \$4.20. The supply of Lake Superior Charcoal is utterly exhausted, but a nominal quotation of \$20.50 on Lake Erie dock still prevails. Despite the figures at which Southern Irons are selling the quotation on Gray Forge remains at \$17.

Finished Material. — The market generally has been quiet save for the omnipresent effort to secure delivery of material contracted for, in many instances, months ago. There has been no change in quotations for the reason doubtless that most interests are practically filled up with orders on all classes of material. Beyond provisional promises of delivery no business is being taken for the first half of 1900.

Old Material. — The market remains much the same as for several weeks past, but with slightly upward tendencies. Prevailing quotations are: Steel Melting Stock, \$14, No. 1 Wrought, \$17; No. 1 Cast, \$14; Car Wheels, \$17; Iron Rails, \$20; Borings, \$0.75; Turnings, \$10.50.

Pittsburgh.

Office of *The Iron Age*, Hamilton Building, Pittsburgh, July 19, 1899.

(By Telegraph.)

Pig Iron. — According to the monthly stock report there were only 77,677 tons of Coke Iron on hand July 1, a decrease over June of nearly 25,000 tons. This would indicate that in spite of the present heavy production of Pig Iron it is all going into actual consumption and stocks are being pulled on right along. The situation in the Pig Iron market could hardly be stronger, and prices on Foundry and Forge Irons have again advanced, while round lots of Bessemer have been sold in the week at the full price of \$20, Valley. The strike at Sharpsville turns out to have been a serious affair, as three of the furnaces will have to be shoveled out. In the last few days there has been a good deal of inquiry for Bessemer Iron and considerable tonnage sold. Forge Iron is also in good demand and very scarce, and has sold at \$17.75, Pittsburgh; No. 2 Foundry is higher and has sold at \$19 to \$19.25, Pittsburgh. We quote: Bessemer, \$20; Gray Forge, \$17.25; both at Valley furnace; No. 2 Foundry, \$19 to \$19.25; Gray Forge, \$17.50 to \$17.75; Bessemer, \$20.75, all f.o.b. Pittsburgh. We note sales of Standard Bessemer aggregating about 10,000 tons at \$20, Valley, and one sale of 5000 tons at \$20, Valley furnace. Also a sale of 1000 tons of Gray Forge at \$17.75, Pittsburgh, and one of 500 tons of No. 2 Foundry at \$19.25, Pittsburgh, deliveries over last half of the year. Foundry Iron is very scarce, very little local Iron being offered, and it is likely that prices will go much higher.

Billets. — The Steel market is steadily advancing, and Bessemer Slabs have sold on the basis of \$34 at mill, Pittsburgh. Basic Open Hearth Slabs have sold at close to \$45, Pittsburgh. There are none to be had in this district at any price. Some mills outside of the Pittsburgh district are quoting as high as \$36 on Steel at mill. We quote Bessemer Billets at \$33 to \$34 and Slabs at \$34 to \$35. We note a sale of 3000 tons of Billets at \$33.50, Pittsburgh.

Sheet Bars. — The starting up of Tin Plate mills has relieved any pressure to sell Sheet Bars, and prices are very strong, with the tendency decidedly upward. We quote at \$35.50 to \$36 at maker's mill.

Spelter. — The market is strong, and prices are advancing. We quote at 6.10c., Pittsburgh, for best grades.

(By Mail.)

The principal item in the week has been an advance of \$3 a ton in prices of Barb Wire, Smooth Wire and Wire Nails. Prices on all other kinds of Finished Material are just as firm as ever, and deliveries just as difficult to get. While it is true that demand is not as large as it has been, yet all the mills are away behind in deliveries, and it is evident will carry a good deal of tonnage over into next year. Premiums continue to be paid for material for prompt shipment. Large contracts are being placed by agricultural implement makers for Steel Bars and other material, and at prices many dollars a ton higher than last year. It is hard to find a mill that is not from four to six months behind in deliveries, and the only prompt material that can be had is from concerns that started up recently and are therefore not filled up. Bessemer Pig Iron has been quiet during the week, only sales of small lots taking place. Billets and Sheet Bars continue very scarce and top prices are being paid.

Ferromanganese. — We quote domestic at \$85 a ton, maker's works. As noted last week, foreign Ferro for spot shipment has sold as high as \$100 a ton in this district.

Plates. — Plates $\frac{1}{4}$ -inch and heavier for November shipment are being quoted as high as 2.70c., Pittsburgh. The minimum of the market seems to be 2.50c. where deliveries are optional with the mills. Plates for delivery within the next month or two bring higher prices. It is understood that a local mill has entered recently a very large order for Plates for the Clyde, deliveries running over the greater part, or all, of next year. We quote Tank, $\frac{1}{4}$ -inch and heavier, 2.50c. to 2.75c., depending on delivery; Shell, 2.60c.; Flange, 2.70c.; Marine, 2.85c.; Medium Fire Box, 3c.; Best Fire Box, 3.25c. to 3.50c., all f.o.b. at mill.

Structural Material. — Demand continues heavy and the leading mills have so much tonnage on their books that deliveries within a reasonable time are practically impossible to get. It is stated that the two local mills have enough tonnage on their books to take their entire output for the next four months or longer. Some large contracts have recently been placed, mostly in the East, a good part of the tonnage coming to Pittsburgh. We quote: Beams and Channels, 15-inch and under, 2c.; 18, 20 and 24 inch, 2.10c.; Angles, 3-inch and up to 6 x 6 inch, 2c.; Angles under 3 inches, prices on which are not controlled by the Beam pool, are 2.15c. to 2.25c.; Tees, 3 inches and larger, 2c.; Tees, under 3 inches, 2.20c. to 2.30c.; Zees, 3 inches and larger, 2c.; Bulb Angles and Deck Beams, 2.30c.; Grooved Rolled Plates, 2.25c., all f.o.b. Pittsburgh.

Bars. — There continues to be a heavy demand for both Iron and Steel Bars, and Pittsburgh and Valley mills are filled up for considerable time to come. Prices are very strong, and we quote Common Iron Bars at 1.85c. to 1.90c., half extras, Valley mill. We continue to quote Iron Bars, made from all Muck Bar stock, at 2.05c. to 2.15c. at mill. We quote Steel Bars at 2.05c. to 2.10c., half extras, net 30 days.

Sheets. — The large consumers are pretty well covered, but there is a good steady demand for carloads and less. The Sheet mills are well filled up, some of them practically until the close of the year. Prices are very firm and the advances made last week are being firmly held. We quote No. 27 Black Sheets, box annealed, one pass through cold rolls, at 3c.; No. 28, 3.05c. to 3.10c. The advance in Galvanized Sheets is also being firmly held, and we quote at 70 and 5, with 15c. freight.

Merchant Steel. — There is a good demand, though not as large as earlier in the season. Prices are very strong, with the tendency decidedly upward. We quote: Toe Calk, 2.75c.; Open Hearth Tire, Machine Straightened, 2.75c.; Machinery Steel, Soft, 2.75c.; Hard, 3c.; Common Spring Steel, 3c.; Crucible Analysis, 3.50c.; Tire Steel, 2.40c.; Plow Slabs, Bessemer, 2.75c.; Open Hearth, 3c.; Sleigh Shoe, 2.75c.; Cutter Shoes, Tapered and Bent, 3.75c.; Crow Bars, Pinch and Wedge Point, 3.50c.; Lay Steel, Rolled, 4c.; Hammered, 5c.; Tool Steel, 6.50c. up to 14c., according to grade. Usual terms are now 30 days net, but in special cases some mills still allow 60 days, with 2 per cent. off for cash in 10 days from date of invoice.

Rails. — Prices are higher and from \$30 to \$32, Pittsburgh, is being quoted for light and heavy sections.

Pipes and Tubes.—While the established price on Merchant Pipe is 50, two 10's and 5, jobbers and mills state there is no difficulty in selling at 50 and 10 where the Pipe can be had. The fact is that in the Pipe trade it has been for a long time not a question of price, but where to get the Pipe. The National Tube Company are now actively shaping matters up, and some definite announcement as to policy in selling and prices will soon be announced. We continue to quote Merchant Pipe at 50 and two 10's in less than carload lots, maker's mill, and 50, two 10's and 5 per cent. in carload lots delivered. As stated above, Pipe is being sold at higher prices right along. Demand for Oil Well Casing is very heavy and established prices are being firmly held. We quote Screw and Socket Joint, 3½-inch and larger, 40 per cent.; Inserted Joint, 35 per cent., with an extra 5 per cent. to dealers. Demand for Boiler Tubes is extremely heavy and early deliveries cannot be had. Jobbers in many cases are able to secure higher than the established prices. We quote: 1½ to 1½ inch Iron and Steel, 40 per cent. off list; 1½ to 2½ inch, Iron, 50 per cent.; Steel, 55 per cent.; 2½-inch and larger, Iron, 55 per cent.; Steel, 57½ per cent., with an extra 5 per cent. to dealers. On carload lots freight is allowed, and on less than carload lots prices are f.o.b. maker's mill.

Skelp.—Skelp is about the rarest article on the list, and very high prices are being paid for prompt delivery. The Skelp mills are filled up for the next three or four months, and lately Grooved Skelp has sold very close to 3c. for spot delivery. We quote Iron and Steel Skelp at 2.35c. to 2.50c., depending on sizes and deliveries. Sheared Iron and Steel Skelp is quoted at 2.50c. and higher, the price depending altogether on size and deliveries wanted.

Connellsville Coke.—Last week, out of 18,712 ovens in the Connellsville region, 17,556 were active and 1156 idle, the production being 173,322 tons, a falling off of about 8000 tons as compared with the previous week. It is probable the present month will be a record breaker in the matter of production of Coke in the Connellsville region. There is a very large demand for both Furnace and Foundry Coke, and very little surplus on the market. We quote strictly Connellsville Furnace Coke at \$2.15 to \$2.25, and Foundry Coke at \$2.15 to dealers and \$2.30 to consumers, all in tons of 2000 lbs., at oven. Round lots of Furnace Coke have sold at \$2.25 at oven.

The English Iron Trade.

Summary.—Most satisfactory accounts are to hand regarding the state of trade all over the country. The Pig Iron trade has been steady with less speculative buying and more *bona-fide* business in material for consumption, while further substantial advances have been made in the price of manufactured Iron and Steel in several districts, notably South Staffordshire. Engineers are as busy as ever, while shipbuilders are also well supplied with work. Abroad trade is in a very satisfactory condition, with demand regular and quotations steadily advancing.

Pig Iron.—Trade has been distinctly steadier this week. The speculative spirit has, comparatively speaking, been in abeyance, and such sales as are reported have partaken more of a legitimate character. In the Cleveland district makers are holding back as far as possible, not only with the idea of realizing possible higher prices in the near future, but also to avoid overloading the market with Iron, which, if bought on speculative accounts, might at some future date weaken the trade position by coming into competition at a time when such competition might be undesirable. Prices for No. 3 Iron have again risen, although neither so rapidly nor to such an extent as they did last week. The shipments of Pig Iron from Middlesbrough for the past six months have been the highest recorded, a fact which testifies to the strength of the demand prevailing upon the Continent. East Coast Hematite has risen and mixed numbers have been quoted as high as 75 shillings per ton, although sales have been reported at 1 shilling 6 pence per ton less than this price. In Barrow the hardening tendency in Hematite prices has become more pronounced, the scarcity of Pig Iron and the practically depleted condition of stocks conduced to strengthen the position of manufacturers. Business in Lancashire has been of a limited description all the week, but prices have moved considerably and are now from 4 to 5 shillings higher than they were a fortnight ago. Yorkshire trade is brisk, the demand for all qualities of Iron in the district being fully maintained. In Staffordshire great scarcity continues to be experienced, with the result that makers who have Iron to dispose of can obtain almost anything in reason, as the price of their compliance with orders.

Manufactured Iron and Steel.—A very satisfactory state of affairs prevails in regard to all branches of the finished Iron and Steel trades. The movement for the

abolition of discounts continues to gain grounds and little doubt is entertained that before long combined action will be taken with a view to realizing the desired end. In the Cleveland district all the works are busy and prices continue to move upward. Yorkshire Iron manufacturers report a brisk business doing in all branches of trade, while the demand for Steel throughout the district has seldom, if ever, been equaled. Lancashire manufacturers are booking orders at an advance of 5 shillings per ton on their recent list prices. The advance of 10 shillings per ton made in South Staffordshire renders prices higher than they have been at any time during the past nine years. The Barrow Steel trade is active and high prices are realized for Ship Plates and Marine Sections both in this district and in Yorkshire.

Engineering and Shipbuilding.—Engineers continue very busily engaged, an extensive and varied amount of work being in hand at establishments all over the country. In Yorkshire, where of recent years the electrical branches of the engineering trade have assumed considerable importance, a large proportion of the work in hand is of this description, ranging from installations for lighting and traction purposes, and colliery haulage plant and accessory engineering plant. Shipbuilders in Belfast, at Barrow and on the Clyde report a good business doing, while those on the northeast coast are also fully employed.

Comparison of Prices.—The annexed table shows the current prices compared with those of last week and of the corresponding period last year:

	July 7, 1899.	June 30, 1898.	July 8, 1898.
Iron Ore—	s. d.	s. d.	s. d.
Rubio, Middlesbrough	17 0	17 0	14 3
Rubio, Cardiff	15 6	15 6	13 6
Pottery Mine, North Staffordshire	14 6	14 6	12 6
Hematite, West Coast (at mines)	16 0	16 0	13 6
Pig Iron—			
No. 3 Foundry, Middlesbrough	68 9	68 0	40 4½
Warrants, Middlesbrough	68 9	68 1½	40 2
Scotch Warrants, Glasgow	69 4	69 2½	45 10½
Hematite Warrants, West Coast	74 8	73 0	50 6½
Cold Blast (Foundry), South Staffordshire	110 0	110 0	105 0
Welsh Hematite, Cardiff	74 0	72 6	.....
Manufactured Iron and Steel—	£ s. d.	£ s. d.	£ s. d.
Marked Bars, South Staffordshire	9 0 0	9 0 0	7 10 0
Common Bars, South Staffordshire	8 0 0	8 0 0	6 0 0
Steel Rails, Middlesbrough	6 2 6	5 7 6	4 10 0
Steel Rails, West Coast	5 17 6	5 7 6	4 10 0
Steel Rails, Cardiff	6 2 6	5 15 0	.....
Steel Angles (eng.), Middlesbrough	7 2 6	7 2 6	5 13 9
Steel Angles (eng.), Glasgow	7 0 0	7 0 0	5 15 0
Steel Plates (ship), Middlesbrough	7 19 0	7 10 0	5 18 6
Steel Plates (ship), Glasgow	7 10 0	7 10 0	5 17 6
Tin Plates, Bessemer L.C. Cokes, South Wales	s. d.	s. d.	s. d.
	14 6	13 0	9 9

—Iron and Coal Trades Review, July 7, 1899.

The German Iron Market.

ESSEN, July 3, 1899.

The general situation of the German Iron and Steel market has remained unchanged, the only feature being the growing famine in material. Nothing new has happened in the Ore market, contracts being closed to the end of 1900 for domestic Ores, while engagements for foreign Ores extend considerably beyond that time. Spathic Ores are scarce and the wages at the mines have risen considerably, so that a large proportion of the improvement in prices is absorbed in this manner. Raw Spathic according to quality is quoted 11.60 to 12.50 marks; Calcined Spathic Ore, 16 to 17.50 marks; Nassau Red Hematite with about 50 per cent. iron, 12.20 marks, f.o.b. mine.

It continues to be absolutely impossible to even approximately cover the demand for Pig Iron, so that large purchases have been made abroad and further quantities will have to be contracted for. In view of the brilliant situation of the markets of the world foreign Pig Iron costs more than domestic iron, even without the duty. The scarcity of Pig Iron is sure to continue until an enlarged production on the part of the collieries makes a more ample supply of Coke possible. It is natural that under these conditions the export of German Pig Iron has become very small. Thus in May, 1899, the export of Pig Iron was 14,969 tons against 20,672 tons in May, 1898. During the first five months of 1899 exports were 80,119 tons against imports of 185,204 tons, the greater part thereof being credited to England. For delivery during the first half of 1900 the following quotations are made: Siegen Spiegeleisen, 75 to 76 marks; Special Mill Iron, 64 to 65 marks, f.o.b. Siegen; Westphalian Special Mill Iron, 66 to 67 marks; Ordinary Mill Iron, 65 to 66 marks; German Bessemer, 75 to 76 marks; Thomas Pig, 72 marks; Foundry Iron No. 1 and Hematite Pig, 79 to 80 marks; Foundry Iron No. 3, 75 to 76 marks per ton, f.o.b. furnace; Luxemburg Mill Iron, 74 marks; Thomas Iron, 76 marks per ton, f.o.b. Luxemburg; English Foundry Iron No. 3 82 marks, f.o.b. Ruhrort. Old Material is heavily called for, and Heavy Cast Iron Scrap costs delivered at mill, 72 to 74 marks; Open Hearth Scrap, 67 to 69 marks;

Ordinary Wrought Scrap, 80 to 81 marks; Old Iron Rails, 102 to 103 marks.

Prices for Billets, Blooms, &c., for the first half of 1900 have now been established, being 105 marks for Ingots, 110 marks for Blooms, 115 marks for Billets and 119 marks for Plate Bars, f.o.b. Dortmund, Ruhrort, Diedenhofen or Rothe Erde. These figures apply to Basic Bessemer Steel, Open Hearth Metal being quoted 15 marks per ton more. The quotation for High Carbon Bessemer Billets for Tool purposes is 132.50 to 135 marks. Muck Bar continues scarce, there being few puddlers and a scarcity of Pig Iron. Good Westphalian Muck Bar is quoted 125 to 126 marks.

Contracts for Steel for 1900 have not been made as yet by the syndicate in spite of the urgency of buyers. It is expected, however, that they will be made during the current week. It seems out of the question that the rolling mills will obtain sufficient Steel in order to keep in full operation, in spite of the fact that three new Steel works will be in the market with material in 1900. The three works in question, the Rombach works, the Differdingen works and the Lothringen works at Kneuttingen, have not as yet joined the syndicate, but they have placed the sale of their product in the hands of one party.

Business is very active in Bar Iron, but the works are holding back on sales for delivery next year. Basic Steel Bars and Light Shapes are quoted 165 to 180 marks; Iron Bars and Shapes, 190 to 200 marks; Steel Skelp, average width, 170 to 175 marks; Steel Bands, 172 to 175 marks; Iron Bands, 190 to 192.50 marks; Skelp for Boiler Tubes, 195.50 to 200 marks; Locomotive Boiler Tubes, 240 marks.

The demand for Beams and Structural Material is very heavy and the works are crowded with work. Base price for Beams, 120 marks, f.o.b. Burbach equal to about 130 marks in this district. The Plate mills have been getting some fine orders from the ship yards and from other customers, and there has been some difficulty in covering these requirements, since the Plate mills have not got the necessary raw material. Sheets are more animated and higher prices are asked for delivery in 1900. Ordinary Ship and Tank Plate is quoted 170 marks. Structural Plates, without test 175 marks; with test, 180 marks. Boiler Plate, 190 marks; Sheets, 180 to 185 marks, and 200 marks for the year 1900. Wrought Iron Boiler Plates are quoted 220 marks.

The Wire business is suffering from the uncertainties in the supply of material. The price for Wire Rods for the fourth quarter of this year is 150 to 153 marks. In Drawn Wire the scarcity of material is also felt, and lots for immediate delivery fetch very high prices. The Wire Nail business goes along smoothly so far as the home market is concerned. Export is suffering from the lack of Wire Rods and from the American competition. Ordinary Steel Wire is quoted 165 to 170 marks; Wire Nails, 200 to 210 marks, base price.

In Rail material the latest event has been the sale of over 50,000 tons of Angles and Track Material, to be followed at an early date by very important purchases of Rails. Light Rails are quoted 132.50 to 135 marks; Girder Rails, 160 to 165 marks, f.o.b. mill. Since my last report 5000 cars have been ordered and a large number of locomotives will soon be placed.

During the last week there was a colliery strike in Westphalia which was started by the Polish trammers and drivers with the usual riot, so that a large display of military force was necessary. This morning all the collieries affected have started with full crews, and it is expected that the matter has been settled.

The New York Machinery Market.

Office of *The Iron Age*, 232-238 William street, NEW YORK, July 19, 1899.

Conditions in the machine tool trade remain quite unchanged. A fair amount of business is going through, and prices are firm, but without change. The business which is being transacted is not coming in especially large lots, but members of the trade say that it is of a type which is always desirable, consisting of a smaller class of orders, which bring with them a good profit. It is said that all of the very large deals which were consummated in this market recently went through on a very close margin.

The largest transaction which is reported this week is credited to the Navy Department. It was the first batch of large machinery ordered to replace that destroyed by fire in the Brooklyn Navy Yard, and amounted to something upward of \$40,000. In awarding these contracts the matter of delivery was first taken into consideration, and in several instances awards were made for higher priced tools on account of time to be gained in the deliveries. The contracts were divided between Manning, Maxwell & Moore, the Niles Tool Works Company, J. J. McCabe, the American Tool Works Company and Hill, Clarke & Co. We are informed that an 8-foot boring mill, which was awarded to Manning, Maxwell & Moore, was promised within five days.

The Niles Tool Works Company received an order for five good sized lathes, ranging from 32 to 48 inches swing. The former size is to contain a 46-foot bed for turning shafting. These tools, we understand, are independent of the lot spoken of above, as are also a 63-inch lathe, large horizontal boring mill, an 18-inch and a 20-inch slotter. Chief Engineer J. A. B. Smith of the Brooklyn Navy Yard has made provision for the temporary installation of as many of the large tools just ordered as possible, prior to the completion of the new main machine shop. The south end of the large foundry building is now being cleared and fitted up for this purpose. The building is about 80 feet wide. About 125 feet of the length of the building will be apportioned off for the installation of the heavy machine tools. A 30-ton Shaw crane, of which there are two at present in the foundry, will be run down and used in this end of the building. A 125 horse-power engine has been resurrected from the scrap heap and placed in position for operating the machinery. It is not expected that the building of the main machine shop will be completed in less than a year from date. This temporary shop, containing the large tools in addition to the temporary shop in which many smaller tools are now in operation, will serve all purposes in the meanwhile. When the new main building is completed it will be fitted up with brand new tools and the men transferred from the temporary shops to the newly erected and equipped shop. Then the tools which are now in use in the temporary shops will be transferred to the new shop and additional men put on to operate them. It is expected that specifications will be ready for the large equipment for the new shop within about six weeks. Chief Engineer J. A. B. Smith is now at work preparing the requisitions which will be forwarded to Washington and issued there by the Bureau of Steam Engineering. Chief Engineer Smith is also preparing specifications for wood working tools to be added to the pattern shop. These will also be ready in about six weeks.

In the matter of the pending consolidation of the Niles Tool Works Company, the Pond Machine Company, Bement Miles & Co. and the Philadelphia Engineering Works, we are reliably informed that Col. Robert C. McKinney is now here attending to the details of closing. We are also informed that the chartered accountants are now upon the road examining the books of the various concerns, and that Gordon T. Hughes, the attorney, is completing the search of the titles and other matters attendant upon the consolidation. It is said that the amalgamation will be completed by about the middle of the coming month.

F. Brotherhood, who has for some time been connected with the trade, is now the American correspondent to V. Lowener, the proprietor of large machinery houses, located at Copenhagen, Stockholm, Christiania and Melmo. Mr. Brotherhood has opened offices at Room 307, White Building, 95-97 Liberty street. Aage Lowener, engineer to this concern, was visiting this country during the last few weeks. He has just returned to Copenhagen. While here he purchased from the Schenectady Locomotive Works eight locomotives and also closed a deal, purchasing 165 lathes of various stock sizes from the Flather Machine Company, Nashua, N. H. This concern have also placed orders with the Niles Tool Works Company for two 60-inch lathes, and have ordered from the Morgan Engineering Works, Alliance, Ohio, two electric traveling cranes. V. Lowener is the sole agent in the various cities spoken of above for the Brown & Sharpe Mfg. Company, Pratt & Whitney, the Niles Tool Works Company, the American Wood Working Machine Company, Schenectady Locomotive Works, Morgan Engineering Company and the Flather Machine Company. He is at present stocking up the various stores with machinery. An order has just been received by Mr. Brotherhood from Copenhagen for about eight carloads of hoists. These will be purchased from Edward Harrington of Philadelphia. A cablegram has just been received for eight additional locomotives for Finland.

Schnichardt & Schutte are just completing arrangements for the opening of an additional branch in St. Petersburg. The warerooms are now being fitted up with a stock of American machinery. A large factory building is also being erected at this point, and considerable machinery has been purchased in this country by this concern for equipping this plant. This step will greatly facilitate this concern's rushing business. They have previously been represented in Russia only by their numerous traveling engineers.

For the addition which the Bullard Machine Tool Company are building to their works at Bridgeport, Conn., they have just ordered from the Brown Hoisting & Conveying Machine Company, 26 Cortlandt street, a 10-ton three-motor electric traveling crane of 40 foot span.

Edwin N. Hurley, president of the Standard Pneumatic Tool Company of 100 Broadway, has sailed for England. The object of his trip is to arrange for the erection of a plant near London where the pneumatic

tools and specialties of this concern will be manufactured for the European trade. Mr. Hurley will also cross over to the Continent and arrange an agency system there for the handling of American tools. We are informed by the New York manager that no details as to the plans for establishing the English factory can be had until Mr. Hurley returns to this city, which will be some weeks hence.

The reports of the proposed establishment of factories in England and France by the Westinghouse Electric & Mfg. Company are of interest to machinery builders. It is stated that the works at Manchester will employ some 5000 men. George Westinghouse is now in Europe making arrangements for this new enterprise. It is rumored in the trade that the Stanley Electric Company of Pittsfield, Mass. have been absorbed by the Westinghouse interest. It is also reported that the Stanley Company have just received a contract for the installation of a power transmission plant in Alabama to cost \$75,000. The contract calls for three 1000 horse-power generators, 6000 horse-power transference, a switchboard and complete equipment. The plant is to transfer 3000 horse-power a distance of 25 miles. It is said that the contract was awarded by the Montgomery Power Company of New York.

We are informed that Babcock & Wilcox were awarded the large boiler contract given out last week by the Boston Elevated Railway Company. It is rumored that the contract for boilers for the new power station which the Manhattan Railroad Company are about to erect at Seventy-fourth street and East River will be awarded before the close of this week. We are informed on good authority that the company's engineers are now working on the proposals of the various bidders and that a decision is about due.

The contract for the heating and ventilating apparatus for the United States Emigrant Station now being erected at Ellis Island, New York Harbor, was awarded to the Buffalo Forge Company of 39 and 41 Cortlandt street, through G. A. Suter & Co., heating engineers. The order includes 48,000 feet of 1-inch heating pipe and six 90-inch fans, together with all appurtenances. The Buffalo Forge Company have also secured the order for the installation of an induced draft system at the plant of the Narragansett Brewing Company, Arlington, R. I. The M. S. Friede Company, 320 Broadway, who are doing much purchasing for the equipment of the temporary machine shops being erected for the Chinese Eastern Railway, have contracted with the Buffalo Forge Company for upward of 100 forges and 14 blowers.

Westinghouse, Church, Kerr & Co., 26 Cortlandt street, have just received an order from the Riter-Conley Mfg. Company, Pittsburgh, for two 125 horse-power gas engines. These are to be installed in the Pittsburgh plant of the latter concern. The contract for the Boston Post Office steam plant was also awarded to Westinghouse, Church, Kerr & Co. It is said that this contract is worth about \$20,000.

Hamilton & McClave, 141 Broadway, have just received an order for three 16 x 16 inch McEwen engines, built by the Ridgeway Dynamo & Engine Company. These are to be installed in a large building being erected at 580-590 Broadway by Weil & Meyer. They will be direct connected to Western Electric 100-kw. machines. This concern have also received an order from the Standard Electric Light, Heat & Power Company of Avoca, Pa., for a 14 x 14 belted McEwen engine. The Standard Oil Company have ordered for their Long Island City works three Fisher engines from Woolston & Brew, 141 Broadway. Two of these are to be direct connected to 150-kw. and one to 100-kw. generators. The Eagle Pencil Company have ordered from Woolston & Brew a 600 horse-power Brown engine, manufactured by the C. H. Brown Company, Fitchburg, Mass.

The Coatesville Boiler Works whose New York offices are located at 141 Broadway, have just received orders from South America for 10 vertical boilers, 14 large tanks, two ladies, and three dozen charging boxes. This company have just completed an addition to their works, which doubles the floor space and machinery equipment. The greater portion of the machinery purchased for installation was supplied by Hilles & Jones of Wilmington, Del.

A large Hall air compressor and six cranes, built by Alfred Box & Co., Philadelphia, have just been installed. Specifications have just been issued for an extensive addition to the power plant of the Western Electric Company, Bethune street, this city.

An admirable report on the chances of developing an export business with Europe in anthracite coal has been published by Henry S. Fleming, secretary of the Anthracite Coal Operators' Association. It appears that the prospect is not very bright.

New York.

Office of *The Iron Age*, 232-238 William street, {
NEW YORK, July 19, 1899. }

Pig Iron.—There has been a further advance in prices for early delivery, and some good lots of Iron have been sold. There has also been some selling for delivery into 1900, a part of it to New England consumers. There have been some export sales, among them one lot of 1500 tons for the Continent. One inquiry for 2000 tons for Genoa, Italy, was turned down. We quote as follows: Lehigh and Schuylkill Irons, No. 1 Foundry, \$20.50 to \$21; No. 2 X, \$19.50 to \$19.75; No. 2 Soft, \$18.50 to \$18.75; No. 2 Plain, \$18.50 to \$18.75, and Gray Forge, \$17.50 to \$18. Southern brands are quoted: No. 1 Foundry, \$20 to \$20.50; No. 2 Foundry, \$18.75 to \$19; No. 1 Soft, \$19.50 to \$19.75; No. 2, \$18.50 to \$18.75, and Gray Forge, \$17.25 to \$17.50.

Cast Iron Pipe.—No large contracts have been closed, nor are there any in this market. The demand runs chiefly toward small sized Pipe.

Steel Rails.—There is very little doing, but the mills are busily engaged. In some instances some of the roads who have low priced contracts, not needing them promptly, have consented to delays in delivery and have placed the works in a position to take care of rush orders. The price remains nominally \$28 to \$29 at Eastern mill.

Track Fastenings.—We quote Angle Bars 1.80c. to 1.90c.; Spikes, 1.90c. to 2c., and Bolts and Nuts, 2.25c. to 2.30c.

Finished Iron and Steel.—During the week no contracts of special magnitude have been closed. The mills are heavily engaged for many months to come, a vast amount of work is getting into shape. Among the contracts which are expected to come out soon are those for three power houses in this city, which will call for about 20,000 tons of material. Prices continue stiff all along the line. We quote as follows: Beams, 1.90c. to 1.95c.; Angles, 1.90c. to 1.95c.; Universal Mill Plates, 2.50c to 2.60c.; Tees, 1.95c. to 2c.; Channels, 1.90c. to 1.95c.; Steel Plates are 2.60c. to 2.65c. for Tank, 2.70c. to 2.75c. for Shell, 2.80c. to 2.90c. for Flange, 2.90c. to 2.95c. for Fire Box, 2.90c. to 3c. for Locomotive Fire Box, on dock. Refined Bars are 2c. to 2.05c. and Common Bars are 1.80c. to 1.85c. on dock. Soft Steel Bars, 2.05c. to 2.10c.; Steel Axles, 2c. to 2.10c.; Scrap Axles, 1.90c. to 2c.; Links and Pins, 1.75c. to 1.80c.; Hoops, 2.42½c. base, delivered.

Metal Market.

Office of *The Iron Age*, 232-238 William street, {
NEW YORK, July 19, 1899. }

Pig Tin.—This article has again been a football of the London Exchange. The fluctuations which were wired were caused by wild speculation. This will best be attested by reviewing the daily closing quotations for spot. On Thursday last the closing price was £131 12s. 6d. Friday fell off to £131 10s., and Monday's prices soared to £133 2s. 6d. Tuesday reacted and £131 12s. 6d. was quoted. And to-day the figures have again taken an upward turn, and at the close were £132 7s. 6d. Our market was dull and unsettled throughout the entire week. At this writing business is extremely quiet, and the only purchasing which has taken place is being done on a hand to mouth principle. Quotations are very nominal, and at the close to-day the figures given ranged between 28.90c. and 29.25c.

Copper.—This market is firm and steady with apparently little metal to be had. Prices have been advanced, and Lake Superior Ingots is now quoted 18½c. Electrolytic Cakes, Wire Bars and Ingots are firm at 17½c. to 17¾c., and Casting Copper is held at very slight variances from the above figure. The nominal quotation is, however, 17¾c. to 17½c. The London market reports a small business doing and the closing spot prices to-day come just a full pound shy of last week's figures. Spot is quoted £76 2s. 6d., and for three months' futures £76 18s. 9d. is quoted. Best Selected has fallen off 5 shillings, and comes to-day £80 15s. The New York Metal Exchange publishes the following half yearly statistics:

Tons of 2240 Pounds.

Supplies:	
For the six months ending June 30, 1899:	
Domestic production, as per producers' returns.....	124,487
Foreign net importation.....	
	13,908
Total supplies.....	
Deliveries:	138,395
For the six months ending June 30, 1899:	
Exports of domestic to Europe.....	51,723
Exports of domestic to British North America.....	220
Exports of domestic to Mexico.....	50
Contents of Sulphate of Copper exported, 7640 tons at 25 per cent.....	1,910
Total exports.....	
Estimated deliveries for home consumption.....	53,903
	72,000
Total deliveries.....	
	125,903

QUOTATIONS OF IRON STOCKS DURING THE WEEK ENDING JULY 19, 1899

Cap'l Issued.		Sales.	Thursday.	Friday.	Saturday.	Monday.	Tuesday.	Wednesday
\$47,100,000	Am. S. & W., Common.....	33,045	55 1/4-58 1/2	55 1/4-56 1/2	55 -55 1/2	55 -55 1/2	55 1/4-56 1/2	55 1/4-56 1/2
38,150,000	Am. S. & W., Pref. (7 % Cu.)....	1,895	-95 1/2	95 1/2-96	95 1/2-96	95 1/2-96	95 1/2-96	95 1/2-96
9,250,000	Col. Fuel and Iron.....	3,425	45 1/2-45 1/2	45 1/2-45 1/2	45 1/2-45 1/2	45 -46 1/2	45 -46 1/2	45 -46 1/2
46,484,300	Federal Steel, Common.....	29,380	59 1/2-60 1/2	59 1/2-60 1/2	59 1/2-59 1/2	57 1/2-58 1/2	57 1/2-59	57 -59 1/2
53,258,500	Federal Steel, Pref. (6 1/2 % Non-Cu.)	6,820	80 1/2-81 1/2	80 1/2-81 1/2	80 1/2-81 1/2	80 -80 1/2	80 -80 1/2	80 -80 1/2
20,000,000	Tennessee Coal and Iron.....	21,075	69 1/2-70 1/2	68 1/2-70	68 1/2-69 1/2	67 1/2-69	68 1/2-69 1/2	68 1/2-69 1/2
7,974,550	Cambria Iron, Phila*.....	226	45 -45 1/2	45 -45 1/2	45 -45 1/2	45 -45 1/2	45 -45 1/2	45 -45 1/2
16,000,000	Cambria, Steel**.....	6,140	23 1/2-23 1/2	23 1/2-23 1/2	23 1/2-23 1/2	23 1/2-23 1/2	23 1/2-23 1/2	23 1/2-23 1/2
5,00,000	Penna. Common, Phila.....	920	.....	-88	80 -90	89 1/2-90	-80 1/2	-89 1/2
1,500,000	Penna. Pref., Phila.....	20	.....	-88 1/2	-90	.....	.....	.....
28,000,000	Tin Plate Common, New York..	5,985	37 1/2-38	37 1/2-38	37 1/2-38	38 -38 1/2	38 -38 1/2	37 1/2-38
18,000,000	Tin Plate Pref., N. Y. (7 % Cu.)	1,410	.....	84 1/2-85 1/2	84 1/2-85 1/2	84 1/2-85 1/2	-85	-85
28,000,000	Tin Plate Com., Chic.....	3,140	37 1/2-38 1/2	38 -38 1/2	37 1/2-38	-38	38 -38 1/2	38 -38 1/2
18,000,000	Tin Plate Pref., Chic. (7 % Cu.)	135	86 1/2-87	85	85	.....	.....	85
32,000,000	National Steel Common, Chic.	1,728	51 -51 1/2	51 -51 1/2	51 -51 1/2	50 -51	-50	-50
27,000,000	National Steel Pref., Chic. (7 % Cu)	1,875	.....	-91	-91	90 -91	90 -90 1/2	-91
22,000,000	National Steel, Common, N. Y.	7,120	51 1/2-51 1/2	51 -51 1/2	50 1/2-51	50 -50 1/2	-50	-50
27,000,000	Nat'l Steel, Pref., N. Y. (7 % Cu.)	3,020	91 -91 1/2	-91	90 1/2-91	90 -90 1/2	.....	91 -91 1/2
7,500,000	Bethlehem Iron.....	1,376	68 1/2-69 1/2	68 1/2-69 1/2	68 1/2-69 1/2	68 -69 1/2	68 -69 1/2	.....
.....	Bethlehem Steel Rights.....	840	.....	22 1/2-23	22 1/2-23	22 1/2-23	22 1/2-23	22 1/2-23
12,500,000	Pressed Steel, Common.....	350	.....	.....	.....	.....	-50	50 -51
12,500,000	Pressed Steel, Pref. (7 % Non-Cu.)	425	.....	-82 1/2	-82 1/2	-82 1/2	-82 1/2	.....
18,000,000	Am. Steel Hoop, Common.....	1,850	.....	-29 1/2	.....	28 1/2-29 1/2	-29	29 -29 1/2
14,000,000	Am. Steel Hoop, Pref. (7 % Cu.)	1,585	78 -79	76 1/2-76 1/2	75 1/2	-76	-76	-75
.....	Am. Car & Foundry, Common..	4,015	15 1/2-16 1/2	16 -16 1/2	.....	-16	15 1/2-15 1/2	15 1/2-15 1/2
.....	Am. Car & Foundry, Preferred.	2,216	61 -61 1/2	60 1/2-61	.....	60 -60 1/2	59 1/2-60	.....

* Par \$50. ** Par \$100 *** \$1.50 per share paid in. Late Philadelphia and Chicago sales by telegraph.

Bonded Indebtedness: Am. S. & W., \$730,000; Am. Tin Plate, none; Am. Steel Hoop, none; Federal Steel Co., \$13,200,000 Illinois 5 %, \$7,417,000 E. J. E. R. 5 %, \$1,000,000 Johnson 6 %, \$6,732,000 D. & I. R. R. 5 % \$1,000,000 2d D. & I. R. R. 6 %, \$10,600 land grant D. & I. R. R. 5 %; National Steel, \$3,561,000 6 %; Tennessee C. I. & R. R. Co., \$8,367,000 6 %, \$1,114,000 7 %, \$1,000,000 7 % cu. pref.; Pennsylvania Steel: \$1,000,000, Steelton 1st; \$2,000,000 Sparrow's Point 1st, \$4,000,000 consolidated, both plants; Bethlehem Iron, \$1,351,000.

The domestic production shows an increase of exactly 4000 tons as compared with the same period of 1898, but compared with the last half of 1898 the increase amounts to 10,702 tons.

The importation of foreign is the largest on record, exceeding even the total for the whole year of 1898 by 1000 tons. Of the 18,908 tons imported, about 7100 tons came from Europe, being mostly of Australian and Japanese origin.

Exports to Europe show a decrease of 13,611 tons as compared with the same period of 1898, and of 14,180 tons if compared with the last six months of 1898.

The contents of Sulphate exported show an increase of 820 tons as compared with the same period of 1898.

Deliveries for home consumption were extremely heavy during the second quarter of the year. For the six months the increase over the same period of 1898 amounts to 18,000 tons, and if compared with the second half of 1898 the increase shows 12,000 tons.

The surplus in supplies over deliveries amounts to 12,492 tons, the greater part of which went into newly established refineries.

Pig Lead.—The market here during the last week was practically unchanged, and prices quoted to-day are 4.60c. to 4.65c. for carload lots. It is said that the American Smelting & Refining Company are selling larger lots below these figures. It is rather strange that at the same time this company are quoting considerably higher figures for the nearby ports, and it is said that an amount of business has been effected here to be shipped to those ports, as there is a fair margin in buying here and shipping there. The St. Louis market is about the same as the New York market, with 4.55c. to 4.57 1/2c., according to quality. The London market shows an advance of 2 shillings 6 pence for the week, to-day's closing spot Soft Spanish quotation being £14 10s.

Selter—Was firmer at the close of last week, and spot was so scarce that 6.92c. was paid. Since the first day of this week, however, the market is said to have become a little easier, with spot at 6 1/2c. and shipments at 6c. The St. Louis market is 5.80c. to 5.85c., and London is quoted £25 17s. 6d. The Ore market is quiet at a slight advance. The figure quoted was \$44.50, but it is still maintained that business is sufficiently slight to allow for an accumulation.

Antimony—Is unchanged, and the price quoted for Hallett's remains firm at 10c., while Cookson's is still quoted 11c.

Nickel—Is unchanged as to price, but the demand is increasing steadily, and producers are taxed considerably to supply the demand. It is intimated that prices will be kept in their present position in the fall, when yearly contracts will be made. Canadian Nickel is quoted 38c. to 40c. for lots larger than 1000 lbs., and 40c. to 50c. for smaller quantities.

Tin Plate.—Difficulties which have existed between the Tin workers and the American Tin Plate Company have been settled, and the mills have again resumed operation. It is said that the company have agreed to pay the men an advance of 15 per cent. On Saturday last the American Tin Plate Company advanced prices 50c. per box, and the price now quoted is said to be \$4.55 to \$4.60 per box for 100-lb. Cokes, New York, for September and later delivery. It has been stated by various parties that this is the largest advance which has ever been made on the price of Tin Plate at one time. We are informed by an official of the company that the increase in price was occasioned chiefly through advances

which have been made on raw materials during the last few months. This is the first change in prices which the company have made since March 10 last. Since that date prices of raw materials have advanced materially.

The office of the Anaconda Copper Mining Company has been removed to the sixth floor of the Exchange Court Building, 52 Broadway, New York.

Iron and Industrial Stocks.

Generally speaking, the trading in iron and steel stocks in the New York, Philadelphia and Chicago exchanges has been light, and the prime movement has been within narrow limits. It is known in the trade that the earnings of all the concerns are very large now and that the second half of 1899 is going to bring extremely large profits. To some extent, all of the companies are applying a part of their surplus toward strengthening their position by acquiring ore and coal property, making additions and improvements to plant, &c. What sums have been spent and are under engagement for such purposes can only be guessed at, but in some instances they have undoubtedly been large.

	Bid.	Asked.
International Silver, common.....	13 1/2	15
Otis Elevator, common.....	35	37
Otis Elevator, preferred.....	91	92
H. R. Worthington, common.....	55	55
H. R. Worthington, preferred.....	110	112
Cramp's Shipyard Stock.....	83	86
Pratt & Whitney, common.....	3 1/2	3 1/2
Pratt & Whitney, preferred.....	38	48
E. W. Bliss, common.....	138	138
E. W. Bliss, preferred.....	125	125
U. S. Projectile.....	95	100
Barney & Smith Car, common.....	21	25
Barney & Smith Car, preferred.....	81	86
International Pump, common.....	21	23
International Pump, preferred.....	66	67 1/2
Republic Iron & Steel, common.....	16 1/2	17
Republic Iron & Steel, preferred.....	63	64
Diamond State Steel.....	7 1/2	7 1/2
Tidewater Steel.....	13 1/2	13 1/2
Warwick Iron & Steel.....	12 1/2	12 1/2

The International Pump Company have declared a dividend of 1 1/2 per cent. on their preferred stock, payable August 1.

The Cleveland-Cliff Iron Company have increased their quarterly dividend from 1 to 2 per cent.

By authority of the directors, the Dillon-Griswold Wire Company of Sterling, Ill., have declared the semi-annual 3 per cent. dividend. It was paid on June 30.

Stock in the Cuban Steel Ore Company is being subscribed for in Philadelphia. For each share of 7 per cent. cumulative preferred stock one share of common stock is issued. The first call is for 25 per cent.

The Pittsburgh Reduction Company of Pittsburgh, manufacturers of pure aluminum, give notice that on August 1, 1899, the company will pay at the office of the Union Trust Company, in Pittsburgh, the principal and maturing interest on all of the outstanding 6 per cent. gold bonds of the company, being Nos. 51 to 200 inclusive, for \$1000 each, and being all of series B and series C of an issue of bonds bearing date of February 1, 1896.

In the case of Frederick F. Marquand and Louis Schaffer against the Federal Steel Company, in the

United States Circuit Court, the injunction was continued against the company, to prevent the declaration of dividends on common stock prior to the close of the fiscal years, and also on preferred stock on the dates selected by the directors.

The Iron Interests of Central Pennsylvania.

HARRISBURG, Pa., July 18, 1899.—The iron and steel manufacturers of this section of Pennsylvania have never known such prosperity as has come to them during the last year. Everything in the shape of a mill or furnace is in active operation day and night, and even under these conditions the owners find it impossible to keep pace with the tremendous demands for their products. Orders have been booked by the larger plants in such numbers as to assure a continuous run of all the mills in this city and vicinity until the first of next January. Wages have been increasing in proportion to the higher prices for the mill products, so that the laborer is satisfied and there is a harmony between the employer and employee such as has never before existed in this part of the State.

At the Pennsylvania Steel Works a year ago the billet and merchant mills were working on half time and the forge department was shut down entirely. Now every department of the great plant is in full operation day and night. There are now employed by this company at Steelton over 6500 men, as compared with about 5000 employees a year ago, and the present rate of wages is 10 per cent. higher. The orders being booked by the Pennsylvania Steel Company are unprecedented in the history of the corporation. It has been necessary to turn many inquiries down. This week J. C. Turk of the bridge and construction department, who will have charge of the erection of the great bridge on the Burmah railways in India, sailed for London to consult with the engineers of the company, and will then proceed to India. A full force of Americans will be engaged on this work and will leave in two weeks. Shipments of material for this viaduct will begin on August 15. This company are now engaged in getting out steel to be used at the Sparrow's Point shipbuilding yards for the three torpedo boat destroyers for the United States Government. Rails are also being rolled under a large contract for one of the Washington city railways, which is changing from a cable to an underground electric conduit system. The rail mills at Sparrow's Point are engaged in rolling for the first shipment under the second contract for the Trans-Siberian Railway, to be shipped direct to Vladivostock. There has been such a pressure upon all the large mills here that even the stiffening of prices has had no effect in the way of diminishing the rush.

What is true of the Pennsylvania Steel Company is true of the Central Iron & Steel Company, who control most of the large mills and furnaces in South Harrisburg. Since July 1 this company have not been bothered about the booking of orders, but rather with the question of how to escape them. It is seldom that orders have been refused, but the recent tremendous pressure on all sides, including the rolling of thousands of tons of plate for the Carnegie Company and for an Australian government contract, has made it practically impossible for the company to do more than take care of the orders now on hand. This company are turning out the plates for the torpedo boat destroyers being constructed at the plant of the Maryland Steel Company, at Sparrow's Point, and are also engaged in turning out great quantities of structural and boiler steel for locomotive work.

The Central Iron & Steel Company on May 1 began the reconstruction of one of their mills, taking out a 31-plate train and replacing it with a modern mill and hydraulic tables, thus increasing the tonnage 50 per cent. This mill will be ready to roll plate to-morrow or next day. The Central Company have four mills, the other three being modern plants, the Paxton mill being the most modern and the Universal the best mill, according to iron men, in the country. The remodeled mill is supplied with three Cahall boilers, and all the other equipment of a first-class plate mill. The Universal mill runs plate from 8 to 42 inches, and the other three mills have trains for 126-inch roll, 88-inch roll and 72-inch roll, respectively. Wages at the various plants of this company have been increased from 10 to 15 per cent. The product at the Paxton furnaces is the heaviest in a long time, and No. 1 stack, blown in on July 4, has been doing very well.

The tin plate mill of the Lalance and Grosjean Mfg. Company, located at the extreme west end of the city, while only a branch of the works at Woodhaven, N. Y., gives steady employment to nearly 300 men and boys. After a shutdown of one week for stock taking and repairs this plant resumed operations on July 10, and from the present outlook the mills will be operated to their full capacity the balance of this year.

The Harrisburg Foundry & Machine Works are fairly swamped with orders, domestic and foreign. The com-

pany have just received an order for a large engine for an electric plant to be built in Sweden, having defeated both German and English bidders. Many engines are being built for cities along the seaboard, and the entire plant is in constant operation, with two forces of hands, about 325 men being regularly employed. There has been an increase of 10 per cent. in the wages, and, with the installation of the works at the new plant in the western section of the city, near the Lalance & Grosjean mills, the capacity of the works will be greatly enlarged. Orders have been booked for over six months to come.

To-day the old charcoal furnace at Lucknow, near this city, was put in blast. This is one of the oldest furnaces of the kind in Pennsylvania, and indicates better than anything else that could be written of the wonderful activity of the steel and iron business in Eastern Pennsylvania. The muck mill at West Fairview, across the river from Harrisburg, is also in operation after years of idleness, and every man who knows anything about the business of making iron or steel is finding employment at good wages.

The Chesapeake Nail Works, after a brief shut down for repairs, has resumed operation, with a full force of hands.

Through the efforts of John Q. Denny, who had charge of the Lochiel furnaces in this city for many years, all the mills and furnaces at York, Columbia and Wrightsville and thereabouts, have been embraced in the Susquehanna Iron & Steel Company. S.

Wages in the Connellsville Region.

The coke workers in the Connellsville region are enjoying a period of prosperity at the present time such as they have never had before in the history of coke making in that region. Less than 1500 ovens in the region are idle out of a total of more than 18,000 and wages are higher than ever before. The following are the present rates:

Mining room coal, \$1.12 $\frac{1}{4}$ per 100 bushels; mining heading coal, \$1.27 $\frac{1}{4}$; mining and loading wet heading coal, \$1.32 $\frac{1}{2}$; day laborers, in shafts, \$2.12 $\frac{1}{4}$ per day; cagers, per full run, \$2.12 $\frac{1}{4}$; trappers, per full run, 78 cents; tipple men, \$1.78 per full run; track layers, \$2.12 $\frac{1}{2}$ per day; assistant track layers, per day, \$1.72 $\frac{1}{4}$; drawing coke, per 100 bushels of coal charged, 64 cents; leveling, per oven, 10 $\frac{1}{2}$ cents; charging, horses and mules, 4 $\frac{1}{4}$ cents per oven; assistant chargers and larry men, \$1.78 per day; charging engineers, \$2.32 $\frac{1}{2}$ per day; teamsters, \$1.50 per day; carters, per day, \$1.40; yard laborers, \$1.30 per day; forking coke into cars, \$1.25 and \$1.35, according to the size of the car.

The wages paid in 1894 were as follows: Mining room coal per 100 bushels, 78 cents; mining heading coal, 88 cents; mining wet heading coal, 95 cents; day laborers in shafts, \$1.55; in drifts, \$1.50; cagers, \$1.65; trappers, 50 cents per day; tipple men, per day, \$1.35; track layers, per day, \$1.65; assistant track layers, \$1.35; drawing coke per 100 bushels charged, 48 cents; leveling, per oven, 8 cents; charging with horses and mules, 3 cents per oven; charging helpers, \$1.40 per day; charging engineers, \$2 per day; teamsters \$1.30 per day; carters, \$1.20 per day; forking coke into cars, 95, 85 and 75 cents, according to the size of the cars.

A prominent American manufacturer gives the following specifications as proper for nickel steel parts of locomotives:

Three per cent. Nickel Steel.	Minimum Tensile Strength.	Maximum Tensile Strength.	Minimum Elongation.	Elastic Limit.
Crank pins....	78,000	84,000	25% in 2 in.	$\frac{1}{4}$ of Ultimate
Piston Rods....	78,000	84,000	25% in 2 in.	$\frac{1}{2}$ of Ultimate
Driving axles....	74,000	80,000	30% in 2 in.	$\frac{3}{4}$ of Ultimate
Side rods....	60,000	68,000	25% in 2 in.	$\frac{1}{4}$ of Ultimate
Firebox plates....	60,000	68,000	20% in 8 in.	$\frac{1}{4}$ of Ultimate
Saybolts....	58,000	66,000	20% in 8 in.	$\frac{1}{4}$ of Ultimate

Maximum Phosphorous 0.08, Sulphur 0.13, Manganese 0.40, Carbon 0.25, Silicon 0.03.

An extensive addition is being built to the steel casting plant of the General Electric Company, at Lynn, Mass. Sixty acres of land adjoining the present property have been purchased by the company.

Reports have it that the plan to take over the plant, mines and railroad interests of the Thomas Iron Company of Hokendauqua, Pa., on the basis of \$4,000,000, will probably not be carried out.

Telegraphic dispatches report that four of the large boiler shops of Chicago have granted the terms of the striking boiler makers.

HARDWARE.

Condition of Trade.

THE past week has not been an especially eventful one. Business is lagging a little, owing to the influence of the summer and the diminished attention which is given to the regular marketing of goods. Manufacturers and jobbers alike are getting in shape after the rush of the past season, and making their plans for the active prosecution of their interests in the coming months. A good deal is being done in the matter of enlargement of plants and in one way or another increasing facilities for manufacturing goods in anticipation of the heavy business which is expected. Manufacturers are disposed to heed the lessons learned by some of them in costly experience, in regard to the unwise of accepting vague and unspecified orders, and the necessity of covering as far as possible their requirements for raw material in sufficient quantities to meet their needs for some time to come. The continued upward movement of the Iron market is a feature of prime significance, giving for the time being at least a remarkable strength to the prices of nearly all lines of manufactured goods. There are, however, some indications that the rapid advance in prices is having the effect of curtailing consumption somewhat, especially in connection with the popular antagonism to trusts, which are credited with even more influence than they have exerted in forcing values upward. This feature of the case is, however, one that will probably continue to be of considerable importance. While domestic business continues exceptionally good, considering the season, the foreign demand is excellent, and in many lines there is a rapidly increasing volume of business. The importance of this country in the production of Hardware of practically all kinds is being more and more recognized by merchants in other lands, and foreign houses, who have heretofore relied almost exclusively upon English and Continental products, are turning their attention to American Hardware and looking into the desirability of handling it if they are not already doing so. The most serious menace to the rapid extension of this foreign trade is the movement in the direction of high prices, which may for a while tend to check it.

Chicago.

(By Telegraph.)

A continued active trade is reported in Shelf Hardware. Scarcity is experienced in many line of goods, especially those which are now in greatest demand. Haying Tools and other light farming implements are in particularly short supply. It is expected that the scarcity experienced last fall in seasonable goods will be repeated this year. Some indications are already apparent. The outlook continues extremely encouraging for a large fall business, and all possible preparations are being made to meet it. The heavy demand is maintained for all classes of Builders' Hardware owing to the activity in building throughout the Northwest. This brings with it a much larger business in Conductor Pipe, Eaves Trough and other house trimmings. Prices on these goods are now so much in advance of those a year

since that dealers are taking some pleasure in this class of trade. The demand for all kinds of Tinware has lately improved considerably. Stocks bought by dealers early in the year are now evidently getting used up and must be replenished. Merchants generally report that salesmen are having no difficulty whatever in selling goods. It is not so much a matter of price with them as the ability to make good deliveries on orders taken. One of the largest Heavy Hardware houses reports the demand so heavy and mills and factories so far behind in deliveries that hardly a shipment is now made on which some shortage does not occur, for which an apology must be made. The situation grows worse instead of better, manufacturers steadily falling more in arrears in filling their contracts.

St. Louis.

(By Telegraph.)

July trade has developed in good shape, and as to higher prices it is seen that the reluctant buyers are becoming fewer in number. As weeks roll by and prices stiffen rather than weaken, the broken stocks are filled through consumers' needs and dealers' acceptance of advances. It is said that some jobbers have sacrificed their early purchases, but that starts actual buying at advances and braces things up all along the line. Builders' Hardware is being freely sold and the new prices are firmly maintained. Files are in active demand, and present prices are considered tempting, with new figures possibly in sight. Stove Hollow Ware has been advanced 10 per cent., and Tinned Plate has been increased about 50 cents per base box, 14 x 20, the advance being proportionate on the medium and higher grades. Manufacturers of Double Pointed Tacks are said to have a meeting booked for July 20, and changes in keeping with higher raw material may be in order. Barb Wire and Wire Nails have been moved up 20 cents per 100 for single car lots to retailers. Wood Goods, such as Cradles and Snaths, show 10 per cent. advance, but as the season is about over it does not cut much figure. Steel Goods and Farming Tools generally have been in great demand, and factories have been rushed to the limit. Edge Tools find ready sale at present figures, and Wood Choppers' Wedges show substantial advances over prices ruling last season. Picks, Mattocks and Grub Hoes now cost 5 per cent. more than they did a few weeks ago. Carriage and Machine Bolts are moving strongly and the volume of sales is said to be unusual at this season. The Heavy Hardware trade is in fine shape and an excellent business is being transacted.

St. Paul.

FARWELL, OZMUN, KIRK & Co.—Harvest is now approaching and the anxious time for the grain farmer and the merchant is here. The spring and summer months on the whole have been favorable, and a very fair crop is as yet in prospect. It is idle to talk of the spring wheat crop being exceptionally large. It is not so, and it will require the conditions for the maturing and the harvesting of the crop to be very favorable, in order to bring it up to a fair average with the crops of the last few years.

Trade during July has fallen off some. Retail dealers had bought more heavily than usual in the early months. A considerable number of salesmen were off duty a few days, and altogether the usual midsummer lull was on, but with favorable crop conditions this sluggishness is passing away, and during the next month trade will probably become quite active, though this cannot probably be fully realized till well on in August. The first half of

1899 has been a notable period in the history of the Hardware trade. Its like we may not expect to see again in this generation.

We may also reasonably expect to be called on in the future to pay in the reduction of prices in part for the gains that have come through the advances. But this now seems probably relegated to days that are so far ahead that men concern themselves mostly with taking advantage of the present. There is no longer any fear as to prices holding the advances on into 1900.

Omaha.

LEE-GLASS-ANDRESEN HARDWARE COMPANY.—The business situation remains in practically the same condition as outlined in our previous report.

A free movement of merchandise still continues, and although agriculturists are just now busy in the fields harvesting small grains, still the volume of trade is sufficient to satisfy the most exacting.

The prospects for a heavy yield of corn are very flattering, and as this cereal is the staple product of this section of the country, the growth and development of the plant is carefully and anxiously watched. Copious showers of rain have fallen, embracing almost the whole of the grain raising territory, materially brightening the prospects and almost assuring a bountiful harvest. This means that the last half of this year will witness an unprecedented volume of business.

Portland, Oregon.

CORBETT, FAILING & ROBERTSON.—We had the National Editorial Association with us the past week. Portland was theirs without the asking while they tarried. That their reception was warm and substantial we think they will all bear witness to. The coming week we expect the Oregon Volunteers, returning from the Philippines. That they have fully sustained the reputation the battle ship "Oregon" gave our fair State, we think army officers will everywhere attest. We are proud of the "Oregon Boys," and propose to demonstrate same to them in the warmth of our reception. The only cloud will be the absence of many a familiar face that marched away with them to fight the Spaniard. Whether the game now being fought is worth the candle will soon come home to us.

The volume of trade holds up remarkably well, considering the time of year. Prices are well maintained and collections improved over what they were a few months since.

Cleveland.

THE W. BINGHAM COMPANY.—Notwithstanding July is the month of vacations and most travelers are off the road, trade has kept up remarkably well. The aggregate, of course, is not so large as previous months of the year, but is much larger than is usually done this month.

Changes in prices continue to come, affecting principally those lines upon which there have not been any advances. Wires and Nails remain as at our last writing, although an advance is looked for daily and consequently the demand is somewhat stimulated.

City retailers report business as very fair, and the report from the Building Inspector's office for the first 12 days of July shows a surprising amount of building permits issued, the largest of any July on record.

Collections are fair.

Notes on Prices.

Wire Nails.—The anticipated advance in the price of Wire Nails has been announced and prices to the jobbers are 15 cents higher than at our last report, while the prices to the retailers are 20 cents higher. It will thus be seen that the manufacturers are continuing their policy of giving the jobbers ample protection and leaving them to take care of the retail trade. The strictness with which they draw the line between jobbers and retailers is appreciated by a good many relatively large retail concerns, who heretofore have been enabled to buy at prices

closely approximating those paid by the jobbers. Quotations are as follows, f.o.b. Pittsburgh, 30 days net:

To jobbers in carload lots.....	\$2.50
To " in less than carload lots.....	2.52½
To retailers in carload lots.....	2.65
To " in less than carload lots.....	2.75

New York.—The trade in New York and vicinity continues remarkably good for the season and there is a fair but not heavy movement of Nails. Purchases have of late been stimulated somewhat by the anticipation of an advance which has just been put into effect, as noted above. Quotations are as follows:

To retailers, carloads on dock.....	\$2.75 to \$2.80
To " less than carloads on dock.....	2.90 to 2.95
Small lots from store.....	2.90 to 3.00

Chicago, by Telegraph.—The American Steel & Wire Company advanced prices on Monday 15 cents to jobbers. They made the spread according to the circular announcement some time since of 5 cents to single carload buyers, to whom the advance is 20 cents. This makes the quotation on single carload lots the equivalent of \$2.80, Chicago. Jobbers have marked up their prices on small lots from stock to \$2.90. The demand for Wire Nails has been remarkably good for the past week, considering the high range of prices now ruling.

St. Louis, by Telegraph.—The expected advance in Wire Nails was named this week and the trade reports that sales were very satisfactory in anticipation of new quotations. The base for single car lots to retailers is now equal to \$2.85, St. Louis, showing an increase of 20 cents per 100 over last prices. Smaller quantities are sold at a minimum of \$2.95, base, out of stock.

Pittsburgh.—The American Steel & Wire Company have advanced prices on Wire Nails 15 cents to the jobbing trade. Terms are now net 30 days, the 2 per cent. cash discount having been abolished. The demand for Wire Nails is only fair and there is some unevenness in prices made by the jobbing trade. However, considering the fact that the spring trade is about over, the present demand is referred to as being fairly satisfactory. We quote to jobbers in carload lots, \$2.50; to jobbers in less than carload lots, \$2.52½; to retailers in carload lots, \$2.65; to retailers in less than carload lots, \$2.75, all f.o.b. Pittsburgh; terms, net 30 days, with freight to destination added.

Cut Nails.—The Cut Nail market has continued in about the same condition as heretofore, except that it has been expected higher prices would be announced as a result of the advance in Wire Nails. Prices now are as follows, f.o.b. Pittsburgh, freight being added to destination, but the differential between jobbers and retailers is not always observed:

To jobbers in carload lots.....	\$2.10
To " in less than carload lots.....	2.15
To retailers in carload lots.....	2.15
To " in less than carload lots.....	2.30

New York.—There is a moderate movement of Nails, the demand being limited somewhat by the summer weather and vacation season. Quotations, which are higher, are as follows: For carload lots on dock, \$2.25 to \$2.30, base, while small lots from stock are held at \$2.45 to \$2.50.

Chicago, by Telegraph.—The ordinary volume of business is being done in this line and prices are unchanged, small lots from stock being held at \$2.30.

St. Louis, by Telegraph.—Makers still quote carload lots at \$2.20, base, St. Louis, but as new prices on Wire Nails have been to some degree followed by the Cut Nail trade to-day's quotations may not hold good very long. Small lots are selling at from \$2.30 to \$2.40, base, out of store.

Pittsburgh.—Following the advance made in price of Wire Nails, Cut Nail manufacturers have advanced prices and we now quote as follows: Carloads, \$2.25; less than carloads, \$2.35, f.o.b. maker's mill, Wheeling; terms, 60 days less 2 per cent. cash ten days. We are advised that the demand for Cut Nails is only fair, having fallen off considerably from last month.

Barb Wire.—An advance of 15 cents to the jobbers and of 20 cents to retailers has been made in Barb Wire,

present quotations being as follows, f.o.b. Pittsburgh, net 30 days:

To jobbers in carload lots, Painted.....	\$2.60
" " Galvanized.....	3.10
" in less than carload lots, Painted.....	2.83
" " " " Galvanized.....	3.12
To retailers in carload lots, Painted.....	2.75
" " Galvanized.....	3.25
" in less than carload lots, Painted.....	2.85
" " " " Galvanized.....	3.35

Chicago, by Telegraph.—A corresponding advance to that on Wire Nails has been made in all kinds of Wire. Prices to jobbers have been advanced 15 cents per 100 pounds, while prices on single carload lots have been advanced 20 cents. This makes quotations at Chicago \$2.65 for single carload lots of Plain Annealed Wire, \$2.90 for Painted Barb Wire and \$3.40 for Galvanized Barb Wire. Jobbers have advanced their prices on small lots from stock to 10 cents per 100 pounds above these rates. The demand for Plain and Barb Wire has not been quite so heavy as for Wire Nails, but is nevertheless considered remarkably good for the season.

St. Louis, by Telegraph.—Twenty cents per 100 pounds is the extent of the new advance on single car lots to retailers and to day's quotation is \$2.95, St. Louis, for Painted. Less than carload lots are placed at \$3.05 at store. The spread on Galvanized is still 50 cents per 100 pounds. Some buying was done last week to get in before the looked for increase and a fair movement was had in consequence.

Pittsburgh.—Prices of Barb Wire have been advanced 15 cents and we now quote as follows: \$2.60 for Painted in carload lots to jobbers and \$2.85 to the small trade in less than carload lots, with an advance of 50 cents for Galvanized, all f.o.b. Pittsburgh; terms, net 30 days, to which freight to destination is added. The demand for Barb Wire is dull, but there is a large volume of business for export.

Smooth Wire.—The advance noted above under Wire Nails and Barb Wire has also been made on Smooth Wire and quotations are as follows, f.o.b. Pittsburgh, 30 days net:

To jobbers in carload lots.....	\$2.85
To " in less than carload lots.....	2.87
To retailers in carload lots	2.50
To " in less than carload lots.....	2.60

Pittsburgh.—Prices have been advanced 15 cents, while carload lots are now 15 cents higher than jobbers' prices and less than carload lots 25 cents higher. We quote to jobbers in carload lots, \$2.85; to jobbers in less than carload lots, \$2.87½; to retailers in carload lots, \$2.50; to retailers in less than carload lots, \$2.60, all f.o.b. Pittsburgh; terms, net 30 days. The charge for galvanizing is 50 cents on sizes from Nos. 6 to 14 inclusive; on Nos. 15 and 16, 85 cents, and on Nos. 17 and 18, \$1.10.

Wire Picture Cord.—The heavy advances which have taken place in Wire have necessitated higher prices on the part of the manufacturers of Wire Picture Cord and the market on this line of goods is characterized by a decidedly strong tone. There is, however, a good deal of diversity in current quotations, owing in good measure to the large stocks held by the jobbers, many of which were purchased at very much lower figures than are now ruling. There is, too, another cause for unevenness in price in the fact that the goods are made in different grades and lengths, there being as many as four styles of Picture Cord Wire which the trade may purchase—viz., regular goods, full measure; regular goods, short measure; special goods, full measure; special goods, short measure. Some of the lowest prices which have been developed are of course for special goods of short measure. The way in which the cord is frequently put up prevents the trade or the consumer from paying much attention to the length. This is a matter which should be regarded by the trade, and it would be a matter which would meet with general favor if the manufacturers could do something to correct the existing condition of things. Many of the jobbers are selling in small quantities at lower figures than are made by the manufacturers on larger quantities.

Burke's Toe Calks.—The following revised price-list on Toe and Heel Calks has been issued by P. F. Burke, South Boston, Mass., and is subject to a discount of 10 and 5 and 5 per cent:

	Cents per pound.
One Prong Blunt, Regular and Long.....	5
Two " " (only manufactured).....	6
One " Sharp, " and Long.....	6
Two " " (only manufactured).....	7
Blunt Heel (or Bar Shoe) Calks.....	6
Sharp " " " "	7

Bolts and Nuts.—An important meeting of the manufacturers of Carriage Bolts, Machine Bolts, &c., and Cold Punched and Hot Pressed Nuts is in session at Alexandria Bay, N. Y. In view of the condition of the Iron market and the heavy pressure upon the factories a further advance of about 10 per cent. has been made in the price of Bolts and of 2 10 cent per pound on Nuts all around.

Wire Rope.—The manufacturers of Wire Rope have for a long time been at work on new list prices, which have now been adopted and are announced under date July 1. They have also adopted a new list on Wire Rope Fastenings, including Sockets, Hooks and Thimbles, Swivel Hooks and Sockets, Clips, &c. The new list on Wire Rope is given below, and is subject to a discount of 30 per cent. to consumers and 30 and 2½ per cent. to the trade, terms 30 days, or 1 per cent. discount for cash in ten days:

NEW WIRE ROPE LIST.

Standard Hoisting Rope.

19 Wires to the Strand.

Trade No.	Diameter.	Iron.	Cast steel.	Extra strong crucible steel.	Plow steel.
1	2½	\$1.17	\$1.42	\$1.70	\$2.00
2	2	.92	1.11	1.34	1.56
3	1½	.80	.93	1.15	1.35
4	1¾	.63	.74	.91	1.08
5	1¾	.57	.66	.80	.98
5½	1¾	.48	.56	.67	.77
6	1¾	.40	.46	.55	.63
7	1¾	.33	.38	.45	.52
8	1	.26	.30	.36	.43
9	¾	.20	.23	.28	.34
10	¾	.16	.18	.22	.26
10½	¾	.12	.14	.16½	.19
10¾	¾	.10	.12	.14	.16
10¾	¾	.08	.11	.12½	.14
10a	¾	.07½	.10	.11½	.13
10¾	¾	.07	.09½	.11	.12½
	¾	.06½	.09½	.10½	.12½
	¾	.06½	.09	.10½	.12

Transmission and Standing Rope.

7 wires to the strand.

Trade No.	Diam.	Iron.	Cast steel.	Extra strong crucible steel.	Plow steel.
11	1½	\$0.51	\$0.60	\$0.75	\$0.90
12	1¾	.43	.51	.64	.75
13	1¾	.36	.43	.53	.61
14	1¾	.29	.36	.44	.51
15	1	.23	.28	.34	.41
16	¾	.17½	.22	.26	.32
17	¾	.14	.16	.20	.25
18	¾	.12	.13½	.17	.20
19	¾	.10	.11	.14	.17
20	¾	.08	.09	.11½	.14
21	¾	.06½	.07½	.09½	.11
22	¾	.05½	.06½	.07½	.08
23	¾	.04½	.05½	.06	.06½
24	¾	.03½	.04½	.05½	.06
25	¾	.03½	.04	.05	.05½

Galvanized Wire Rope

For Ship's Rigging and Guys for Derricks.

Circumference.	Ap. prox. diam.	—List per foot.—	Circumference.	Ap. prox. diam.	—List per foot.—
	7 wires	12 wires		7 wires	to strand.
5½	¾	\$0.44	2½	¾	\$0.09
5½	1½	.41	2	¾	.08
5	1½	.38	1½	¾	.07
4¾	1¾	.35	1¾	¾	.06
4¾	1½	.31	1½	¾	.05
4¾	1¾	.27	1½	¾	.04
4	1¾	.24	1	¾	.03½
3½	1¾	.21	.22		5 strands, 7 wires each.
3½	1½	.18	.19	¾	\$0.03
3½	1½	.16	.17	¾	.02½
3	1	.14	.15	¾	.02½
2½	¾	.12	.12	¾	.02
2½	1½	.10			

Galvanized Cast Steel Yacht Rigging.

Circumference.	Approximate diameter.	List per foot.	
		19 wires to strand.	7 wires to strand.
4	1 1/4	\$0.50	\$0.48
3 1/2	1 13/16	.46	.44
3 1/2	1 1/4	.42	.40
3 1/2	1 1/16	.38	.36
3	1	.33	.31
2 1/2	7/8	.26	.25
2 1/2	13/16	.28	.21
2 1/2	9/8	.20	.18
2	5/4	.16	.12
1 1/2	9/16	.13 1/4	.10
1 1/2	5/8	.12	.08 1/4
1 1/2	13/32	.11 1/4	.08
1 1/2	7/16	.11	.07 1/4
1	5/16	.10 1/4	.06 1/4
1	3/8	.10	.05

Galvanized Steel Hawser.			
Circumference.	Approximate diameter.	Per foot.	Approximate diameter.
5 1/2	1 1/4	\$0.85	3 1/4
5 1/2	11/16	.72	3 1/4
5	1 1/8	.62	3 1/4
4 1/2	1 1/2	.56	3
4 1/2	13/16	.50	2 1/4
4 1/2	1 1/8	.45	2 1/2
4	1 1/4	.40	2 1/4

Galvanized Flexible Running Rope.

Circumference.	Diameter.	List per foot.	
		Iron.	Cast steel.
3 1/4	1 1/16	\$0.22	\$0.30
3	1	.20	.27
2 1/2	5/8	.17	.23
2 1/2	13/16	.14 1/2	.19
2	9/8	.11 1/2	.15
1 1/2	7/8	.09	.12
1 1/2	13/16	.08	.10
1 1/2	1 1/8	.07	.09
1	5/4	.06 1/2	.08 1/4
1	3/8	.06	.07 1/4
1	5/16	.05 1/4	.07

Tiller Rope.

Diameter.	1	5/8	5/8	5/8	5/8	5/8	5/8	5/8	5/8
Iron.....	33	27	22	17	14	11	10	9	8
Cast Steel.	43	36	30	24	19	17	15	14	12 1/2

Sash Cords.

Trade No.	Diameter.	Iron.	Tinned or Galvanized.	Copper.
26	3/8	3	4	9
27	7/32	2 1/2	3 1/4	7 1/4
27 1/2	9/32	2 1/4	3	6
28	13/32	1 1/2	2 1/4	4 1/2
28 1/2	15/32	1 1/4	2	3 1/2
29	17/32	1 1/4	1 1/4	3

Galvanized Steel Strand.

7 Wires.

Diameter.	Weight per 100 ft.—pounds.	List per 100 ft.
5/16	52	\$3.15
7/32	40	2.50
5/8	30	2.10
5/16	22	1.60
3/4	13	1.15
5/16	8	.80
5/32	5	.60
5/8	3 1/4	.45
5/32	2 1/4	.35

Galvanized Mast Iron Rope.

Diameter.	5	5/8	5/8
Per foot.....	5	3 1/4	2 1/4

Chain.—A further advance of about 25 cents per 100 pounds has been made by the manufacturers of Coil Chain. The market on this line is very firm.

Washers.—The market on Washers is characterized by a strong tone and manufacturers' prices are about 2-10 of a cent higher.

American Bicycle Company.

An official announcement of the formation of the American Bicycle Company has been made as follows: capital, \$40,000,000, as follows: Debenture bonds, 5 per cent., \$10,000,000; preferred stock, 7 per cent., \$10,000,000, and common stock, \$20,000,000. The bankers who have underwritten the undertaking are United States Mortgage & Trust Company, New York, and Lee Higginson Company, Boston, proposed that the cycle manufacturers take in payment of their plants the following: Cash, 30 per cent.; preferred stock, 30 per cent., and common stock, 50 per cent., making in all 110 per cent. It is reported that the Pope and Gormully & Jeffrey Company took the entire amount of their properties

in the securities of the company, taking no cash. Forty-five manufacturers, representing 56 concerns, were at the meeting, the plan being to take up the remaining options later, after the directors and officers have been chosen, the options expiring August 1. A. G. Spalding, it is thought, will be chosen president.

Interpretation of Contract.

REFERRING to the question in regard to interpretation of contract alluded to in our last issue, a manufacturer in New York writes:

Regarding interpretation of contract mentioned in *The Iron Age* of July 13: Jobbers have been in the habit of considering contracts made with manufacturers as mere options and subject to cancellation at any time. Even in cases where they were fully specified they have not hesitated to avail themselves of this custom, apparently thinking there was no breach of honor. Manufacturers have been obliged to accept the situation no matter how much they were inconvenienced.

When the conditions are reversed and the manufacturers wish to cancel contracts, should not the jobbers accept the situation with good grace? Would it not have been a generous act for the jobber when he knew that stock was advancing rapidly, and he was selling freely, to have placed early orders with the manufacturer to allow him to protect himself? It would seem that this lack of interest in the manufacturer's welfare would be sufficient cause for cancellation on the part of the manufacturer.

Another Manufacturer's Reply.

In the following letter from a well-known Eastern house, the subject is discussed in some of its important bearings and the manufacturers' view of the case given:

We have read with interest your article on Interpretation of Contract, written by, as you say, a well-known jobbing house, and it is the same old thing over again, "The jobber trying to do the manufacturer."

We, as manufacturers, have also some so-called contracts of this same kind, but as we have consulted our attorney, he advises us that a contract is not a contract, or is not legal or binding, unless it specifies a certain and particular thing is to be done, and that a contract for goods to be binding must specify the quantity of goods to be delivered within a certain time, and that an open agreement to furnish such goods as may be wanted, without any limit attached, is not binding, but at the mercy of either party to the transaction.

We, however, have not availed ourselves of any interpretation of this kind, but, to be of service to our trade, we did agree in a number of instances to protect them at January prices for such goods as they required until June 30, and presuming that we were dealing with honorable business men, we were not, perhaps, as particular as we might have been in the wording of our agreements, not thinking for an instant that any one of them would try to impose upon us in the manner that some of them have.

Although, possibly, not implied in the contract, our intention was to take care of them on their actual requirements until June 30, and did not dream of being asked to enter orders far in excess of their needs, or to give them stock enough to run them for the next year or two. Nor did we expect that the jobbers would scour all parts of the country, offering inducements of prices far below the present value of the goods, simply because some manufacturer had what they supposed an agreement to supply them with an unlimited quantity of goods until June 30, and that this meant all the orders that the mail was able to place into the manufacturer's hands before the time set for the agreement to expire.

Some of our trade have been very fair about this matter and have acted in such good faith that they will be benefited by it in the near future, while others who have endeavored to "grab it all," no matter at what cost to some one else, will feel the effects of it for some time to come.

Trade Organizations.

Hardware Club of New York.

The following new members were added to the rolls of the Hardware Club at a recent meeting of the Board of Governors:

JOSEPH DAHLBENDER, 263 Broadway, New York.
 GEORGE W. DAVIS, 263 Broadway, New York.
 WILLIS T. GRIDLEY, 271 Broadway, New York.
 JAMES H. OLIVER, Oliver Bros., New York.
 CHARLES S. REDFIELD, Yale & Towne Mfg. Company, New York.
 CUYLER K. SANBORN, 150 Nassau Street, New York.
 JAMES D. WEED, J. D. Weed & Co., Savannah, Ga.

New England Iron & Hardware Association.

At the annual meeting of the New England Iron & Hardware Association held at Young's Hotel, Boston, June 20, the stockholders elected the following Board of Directors: Harry L. Doten, Charles H. Breck, Allan J. Chase, E. P. Sanderson, John T. Boyd, P. E. Strauss, O. A. Shephard, John H. Robbins, all of Boston, and William Chamberlain of Portland, Me. Charles H. Breck was chosen treasurer and John T. Boyd clerk, and the directors elected Harry L. Doten president and William Chamberlain vice-president.

Hardware Recreations.

Albany Hardware & Iron Company Outing.

Charles H. Turner, president of the Albany Hardware & Iron Company, Albany, N. Y., tendered an outing to the employees of the establishment last Saturday. Among the other officers present were William B. Wackerhagen, secretary, and James K. Dunscomb, treasurer. Cars were taken to Averill Park, where a ball game, bicycle race, 100 yards dash, standing broad jump and tug-of-war were features of the outing.

A fine dinner was served, at which there were addresses by Mr. Turner and others, a pleasing incident being the presentation to the president by the secretary, on behalf of the employees, of a massive cut glass loving cup, trimmed with silver.

That the employees enjoyed the outing is evident from their remark on their return home: "Employers like ours make work a pleasure, and deserve better results from the employee."

New Departure Bell Company's Field Day.

The officers and heads of departments of the New Departure Bell Company, Bristol, Conn., participated in a Field Day, July 8. As their guests the following members of the firm of John H. Graham & Co., New York, their salesmen and office men left New York the night previous: George Graham, W. J. Lockwood, H. H. Beach, C. A. Hoagland, H. B. Ingraham, T. H. Gossett, J. L. B. Holme, W. H. Graham, J. O. Graham, J. C. Smart, W. T. Maharg, Thos. Hoffman and Samuel Graham.

The party, 39 in all, rode from Bristol to Lake Compoonee, about 4 miles, each individual wearing the Field Day badge here shown. There were boat races, running and bicycle races, baseball and other sports planned, only a portion of which, however, took place, on account of a shower which interfered somewhat with the outdoor exercises. An excellent dinner was served from a special menu card, a few excerpts from which are here given: *Menu*, 10,000 miles and repeat; broiled lobsters, dragons in antique bronze (these being the insignia of the life saving crew); broiled chicken, trouser guards; melons, pathfinder; Roquefort, automatic brake; club cocktails,

electric results without battery; the bill in all containing 27 items, all of which were coupled with some cycle term or reference to the goods made by the company. Among



the officers from the factory were A. F. Rockwell, secretary and treasurer, and John T. Jennings, vice-president.

Trade Items.

L EWIS H. BECK, president of the Beck & Gregg Hardware Company, Atlanta, Ga., was recently unanimously elected president of the Atlanta Chamber of Commerce, a fitting recognition of his position and ability.

G. N. LUSSON of Greene, Tweed & Co., 17 Murray street, New York, sailed July 15 on the steamer "La Normandie" for a trip of about five weeks. His plans are to visit Paris and London principally, soliciting orders for the Brass and Bronze Builders' Hardware made by this house. He will also note any examples of foreign made Hardware of the character indicated that may be profitably developed here.

THE GUTTA PERCHA & RUBBER MFG COMPANY, 35 Warren street, New York, manufacturers of a large line of Rubber Goods, will on or about August 15 remove to 128 Duane street, corner Church street.

THE BRONSON COMPANY, Cleveland, Ohio, manufacturers of the None Such and Ever Ready Coffee Mills, have appointed John H. Graham & Co., 118 Chambers street, New York, general sales agents for their goods. The None Such Mill is a handsome sheet metal box finely lithographed, rectangular in shape, will grind coffee as fine as wanted, stands on the table and holds 1 pound. The Ever Ready is designed for fastening to the wall, the round canister above the grinder, with a capacity of 1 pound, and cup below to receive ground coffee being fastened to a back board 15 1/2 x 3 1/2 inches in size.

T. M. GALLAVIN has recently perfected arrangements with E. C. Stearns & Co., Syracuse, N. Y., to look after their interests on the road in the Hardware line, covering the territory that will embrace all of the jobbing cities east of Chicago with the exception of the New England States, together with the principal cities in Pennsylvania, West Virginia, Delaware, Virginia, including New York City, as well as the other important jobbing towns in New York State. Mr. Gallavin has been identified with E. C. Stearns & Co. for the past fifteen years, until lately occupying the position of manager of the Hardware department of the plant.

THE CINCINNATI MFG. COMPANY, Cincinnati, Ohio, whose increasing trade demands more room, more light and better facilities for handling goods, have moved their office and storerooms from 519 Walnut street to the new Blymyer Building, 512 Main street, directly opposite the post office, and connecting with their Main street factory in rear. Here they will be enabled to show a good part of their large line of Brushes and Wire Goods.

T. E. OLIVER of Oliver Bros., 127 Duane street, New York, sailed on Saturday, 15th inst., on the French steamer "La Normandie" for a few months' tour in England and the Continent. After the exacting labors of the past few months, with their constantly changing prices and the large business done by his house, his friends will wish him a pleasant voyage and a thoroughly enjoyable trip.

Trade Winning Methods.

This department will contain a description of approved methods of bringing customers to the store by means of newspaper advertising, circulars and such special expedients and methods as are found useful by enterprising and progressive Hardwaremen.

A cordial invitation is extended to merchants to co-operate in the effort to make it suggestive and of practical use to the trade.

Hardware Merchants' Advertising Cuts.

To the line of advertising cuts which we have specially prepared for the use of retail Hardware merchants, those shown herewith have been added.

No. 14, it will be observed, is the word HARDWARE, made up of Hardware articles, and may perhaps attract



No. 14.—Price, 25 Cents.

attention from its novelty, while at the same time it occupies comparatively little space. Besides its use in advertisements it may be found useful for circulars and possibly in connection with some of the stationery of the business.

No. 15 represents a variety of kitchen articles, and is



No. 15. Price, 50 Cents.

intended to call attention to the general line of such household goods.

No. 16 may be adapted in a variety of ways, according to the ingenuity of the advertiser. It is apparently intended to represent the close buyer.

Any of these cuts, with others in the series, will be



No. 16.—Price, 35 Cents.

sent postpaid on receipt by price by David Williams Company, 232-238 William street, New York.

The Iron Age Advertising Prize Competition.

We hereby announce an Advertising Prize Competition for the best advertisement relating to one of the following lines: FARMERS' TOOLS, APPLE PARERS, WINDOW SCREENS, ICE CREAM FREEZERS, MEAT CUTTERS.

1. Object.—The object of the Competition is to draw out the views of the trade in regard to the best and most effective methods of advertising the goods in question. The general participation of those interested in the Retail Hardware Merchant's advertising is invited, such use as we may deem advisable to be made of the competitions submitted.

2. Form.—Those entering the Competition should send to the address given below the design or draft of an advertisement in such form as to indicate clearly its size, subject matter, kind of type, character of display, &c.

3. Size.—The advertisement should not contain more than 25 square inches and may be arranged in one or more than one column.

4. In Regard to Illustrations:

(a.) The advertisement may be without illustration, or it may, at the option of the designer, contain one of the Cuts, Nos. 1 to 5, given in *The Iron Age* June 29.

(b.) If one of these cuts is used it may be indicated by pasting the illustration in the advertisement, or simply designating the cut by number, leaving proper space for it.

(c.) Original illustrations may be suggested, in which case a rough sketch, which will be sufficient to give our artist the idea of the illustration, will be acceptable.

5. Date.—This Competition, which is open to any in the trade, will close Saturday, July 22, 1899.

6. Prizes.—The following Prizes will be awarded:

FIRST PRIZE, \$25.

SECOND PRIZE, \$15.

THIRD PRIZE, \$10.

All communications are to be addressed to

THE IRON AGE,

232-238 William Street,

Advertising Prize Competition.

New York.

A From Credit to Cash Experiment.

A NEW DEPARTURE.—C. A. Pratt, manager for Estate J. G. Champlin, Greenport, L. I., determined on a departure from his customary methods and began it with a series of advertisements in the local weekly paper, some of which are here reprinted.

THE FIRST GUN.—The first announcement was as follows:

DECLARATION OF INTENTIONS!

FIRST.

We intend to abandon the credit system and sell for cash.

SECOND.

We intend to make prices so low that our friends will not have the assurance to ask for credit.

THIRD.

We intend to mark prices in plain figures and have one price to all.

FOURTH.

We intend to pay our debts and in order to do so must have the cash. We hope our friends will see it to their advantage to trade with the local merchants who have to bear their full share of taxation.

Respectfully,

Est. J. G. Champlin,

C. A. PRATT, Manager.

Front Street, Greenport.

A REFERENCE TO PRICES.—It will be seen nothing definite concerning prices was given above, but the style of their advertising the following week is represented in this extract from their advertisement, which was of same size as the foregoing:

The Cash System

Adopted one week ago has resulted in increased sales. To further the movement we offer for cash:

\$6 and \$7 Toilet Sets for	\$4.50
\$8 Toilet Sets for	5.00
\$8 Gasoline Stoves for	7.00
\$9.50 Gasoline Stoves for	8.00
\$11.00 Gasoline Stoves for	9.00
Calcimine reduced from 10c. to	
5c. lb.	

THE NEXT ADVERTISEMENT.—This was supplemented the following week by this announcement:

Cash Talks! Prices Tell!

And customers tell the prices.

This week we have to offer as a specialty:

The Portland Liquid Wood Filler,

A substitute for shellac, at the very low price of **Seventy-five Cents per Gallon.**

Our friends will do well to give these goods a trial as we believe they are straight and very cheap.

Other goods in the line of paints, varnishes, etc., are offered at correct prices for cash at

CHAMPLIN'S.

Cash Store,

Front Street, Greenport.

WHAT HAPPENED.—Now as to the results. The novelty of it got people talking and gave the business additional publicity, while the total cash receipts for the first week after the "Declaration of Intentions" were 50 per cent. greater than the previous week or any week in the season. Some customers came in and squared their accounts who probably would not have come otherwise.

A VERY ROUGH RIDER.

Robert St. Clair, Veedersburg, Ind., is a dealer in General Hardware, Harness, Farm and Garden Implements, Buggies, Robes, &c. The accompanying illustration is a reproduction of a display figure used recently by him in a street fair in that town, and since then exhibited in his store, the fabulous freak being entirely of his own design and creation, made of goods regularly carried in stock.

First was built a frame of poplar, 1 x 2½ inch material, about the size of a road horse figure, used for showing single harness. Over the frame was spread two gray Gnat Robes. The hoofs were 16-inch Japanned Coal Hods, bottom upward. The head was formed with Gig Saddle Pads, the jaws being Dust Pans, and the mane of material such as used in trimming surrey tops. The breast was a large Frying Pan, and the tail a big bunch of ½-inch Hitch Straps. In the legs will be seen a variety of articles, such as Coal Shovels, Toasting Forks, Whisk Brooms, Spoons and Hinges, worked in in various ways, the hind legs having in addition an Air Gun, which formed a good hock joint, quite realistic. Part of the frame that otherwise might be exposed was covered with Saddle Girths, Surengles and Braids. The ears were large Campaign Horns, and the head was fitted with an ordinary Riding Bridle. The rider was made from two small rolls of 6-foot Poultry Netting, about 18 inches of it being fastened together to form the body,

then divided at both ends to form the legs and arms. The head and neck was a roll of Wire Cloth, the eyes Picture Nails, the nose large Spoons, and the mouth a Pocket Level. Beard and hair were XXX Moss, the collar a 22-inch Hoosier Pad, and the coat a light winter Robe with Rosettes for buttons, a good heavy pair of Mittens serving for hands. Small goods, such as Scissors, Spoons, Clothes Pins, Can Openers, &c., cover the sleeves. The pantaloons were fashioned from summer Lap Robes, and the feet were a pair of Skates. For a hat a 2-quart Tin Bucket and 6-inch Pipe Collar were utilized. The saddle was a common riding Saddle. The entire material used in constructing the rider was not heavy, so by using a few short pieces of Snare Wire it

building in which it was used in June last. It is slightly heavier than similar goods made now. The purchaser of the Nails paid \$12.50 for the keg, and could not afford to pay for them with wheat, as it was bringing then only 26 cents a bushel, and he could not haul enough to pay for the Nails, nearly a ton and a half being necessary. To get the money, he trapped minks and sold the pelts for \$1 each.

Requests for Catalogues, &c.

H. L. STRICKER has just bought out E. H. Lang at Calvert, Texas, and is in the market for Hardware, Queensware, &c., catalogues and other matter per-



A Pair of Hardware Thoroughbreds.

was easily fastened in a suitable position. The belly of the thoroughbred was made of Tub Hoops fastened to the frame and filled on the inside with small pieces of Tinware, thus giving a well fed appearance. Mr. St. Clair conceived and executed the model himself, keeping it in the front of his store as an exhibit for about three months.

A Cut Nail of 1862.

WE have received from George W. Johnston, dealer in Hardware, Red Oak, Iowa, a curio in the way of a 10d. cut fence nail, which has an interesting history, illustrating in a striking way changes which have taken places in prices and business conditions. This rusted bit of iron is one of a 100-pound keg that was bought in Council Bluffs, Iowa, in 1862, and was taken from the

taining to which he requests from manufacturers and jobbers.

Allen S. Matthews, Fort Covington, N. Y., is about to put in a stock of Bicycle Repairs and do repairing in connection with his Hardware and Tin business. Mr. Matthews would be pleased to receive catalogues with lists and discounts from dealers in parts, and also from manufacturers of Bicycle machinery.

Alb. Arps & Bros. have sold out their business at New Holstein, Wis., to Leverenz & Schilling, and have removed to Ouray, Col., where they have bought out the San Juan Hardware Company, whose business they will continue, under the style of Arps Bros. Hardware Company, who have been organized with a capital stock of \$20,000. Arps Bros. Hardware Company will be pleased

to receive catalogues, quotations, &c., from manufacturers and jobbers of Hardware, Iron and Steel and Mining Supplies.

American Iron & Steel Mfg. Company.

WE understand that a consolidation of the following industrial plants of Eastern Pennsylvania has already been agreed upon—namely, the Bolt and Nut Works of J. H. Sternbergh & Son, Reading, Pa.; the Lebanon Iron Company, comprising the rolling mill plant in Lebanon and the National Bolt, Nut & Rivet Works of Reading, Pa.; the Pennsylvania Bolt & Nut Works of Lebanon, Pa., and the East Lebanon Iron Company of Lebanon, Pa., under the name and style of the American Iron & Steel Mfg. Company, with ample working capital paid in for the prosecution of the business. There will be a limited amount of preferred stock issued in payment for the several plants, and in addition there will be a certain amount of common stock, 10 per cent. of which will be called for in cash, to pay for the manufactured goods and the stock of supplies and materials on hand, at present owned by each of the above concerns, and for the working capital of the consolidated company. Whenever additional capital shall be needed hereafter for the purchase of other plants or for the enlargement and development of the business, further calls may be made for such percentage of the common stock as may be required. The several plants above mentioned will be taken over by the new company on September 1, or as soon thereafter as practicable.

Directors of the new company will be chosen from those now connected with the present organizations, and the officers of the new company and the location of the general office will be determined later.

Mr. Sternbergh's plant was established in 1865, and now gives employment to over 1200 men in the manufacture of Bolts, Nuts, Rivets, Merchant Bar Iron, &c. The Pennsylvania Bolt & Nut Company's plant was organized in 1881 for the manufacture of the same line of goods, and now employs over 1700 men. The National Bolt, Nut & Rivet Works was organized in 1890 for the manufacture of Bolts, Nuts and Rivets, and now employs about 300 men. The Lebanon Iron Company and the East Lebanon Iron Company were organized for the manufacture of Merchant Bar Iron, and now employ each about 300 men.

These several establishments have heretofore been in active competition with each other, but now find it to their mutual advantage to consolidate their business interests for the purpose of effecting numerous economies and more perfectly developing their machinery and methods of manufacture, and for more satisfactorily meeting the demands of the domestic trade and increasing their growing trade in foreign countries.

Price-Lists, Catalogues, &c.

FRED. J. MEYERS MFG. COMPANY, Hamilton, Ohio: Fenders, Fire Guards, Hunter's Sifters and Corn Poppers, Conductors' Punches, Sand Screens, Window Guards, &c.

CHARLES P. MOORE, Ravenswood, W. Va.: Perfect Shelf Boxes for all shelf goods. Sample box sent by mail prepaid for 28 cents in stamps.

WESTERN MFG. COMPANY, Springfield, Ohio: Lathe, Planer and Shaper Tools.

STUBER & KUCK, Peoria, Ill.: Pieced Tinware and Specialties, including Hunter Pattern Sifters and Peoria Henis Pattern Fruit Press.

BRAUNSDORF-MUELLER COMPANY, Elizabeth, N. J.: Catalogue No. 2 of high grade Mechanics' Tools.

GEORGE W. CHURCH 183 Greenwich street, New York, has been appointed a sales agent for the National drill chucks made by the Oneida National Chuck Company, Oneida, N. Y., recently illustrated in these columns. Mr. Church is also acting as sales agent for the Mechanic's hand soap manufactured by the Clark Chemical Company. This soap is a new product and especially prepared

for removing stains, paint, ink, greases, &c., from the hands and faces of artisans or any who come in contact with soil of the character described. It is said to contain no sand, grit or similar irritating substances and will not scratch. It is particularly recommended for machinists, mechanics, polishers, plumbers, cyclists, dyers, stenographers, lithographers, printers, painters, &c.

OUR readers will observe among the Special Notices in this issue one in which C. B. Carter announces the severance of his connection with the Southern Hardware Jobbers' Association, of which he has been secretary-treasurer. He is now intending to represent manufacturers in the Southern States, and his announcement in regard to the matter is commended to the attention of those who are in a position to avail themselves of his services in the marketing of their goods.

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The Michigan Hardware Association.

FOURTH ANNUAL CONVENTION.

THE Michigan Hardware Association held their fourth annual convention at the Russell House in Detroit on Wednesday and Thursday, the 12th and 13th inst. The convention is one of the great events in the Hardware trade of the State, and attracts numerous representatives of jobbing houses and manufacturers. The attendance this year of Hardware dealers and of those interested exceeded that of any former occasion, indicating the increasing importance attached to the Hardware trade organizations. The register showed the following names of those present:

Persons in Attendance

C. G. Jewett, Howell.
 Henry C. Minnie, Minnie & Bromeling, Eaton Rapids.
 J. G. Patterson, J. G. Patterson, Detroit.
 A. H. Dane, Michigan Stove Company, Detroit.
 C. L. Frizelle, Fletcher Hardware Company, Detroit.
 J. S. Harris, McIntosh-Huntington Company, Cleveland, Ohio.
 A. P. Barlins, Fletcher Hardware Company, Detroit.
 W. F. Leckie, Round Oak Stove Company, Dowagiac.
 J. O. Becroft, Round Oak Stove Company, Dowagiac.
 Henry C. Weber, Henry C. Weber & Co., Detroit.
 H. D. Final, Morley Bros., Saginaw.
 Day Gordon, Morley Bros., Saginaw.
 Frank H. Conant, Freeman, Delamater & Co., Detroit.
 F. W. Kann, New Buffalo.
 Daniel Stern, *The American Artisan*, Chicago, Ill.
 Orin A. Kelley, Milan.
 W. J. Dillon, Detroit.
 G. J. Kastenberg, Standart Bros., Detroit.
 F. B. Hatch, Milford.
 Albert Gulloz, Standart Bros., Detroit.
 A. J. Carson, E. C. Atkins & Co., Kalamazoo.
 D. L. Whitmack, D. L. Whitmack & Co., Tecumseh.
 W. H. Pipp, Bellaire Stamping Company, Grand Rapids.
 F. C. Goddeyne, Bay City.
 Theodore D. Buhl, Buhl Sons & Co., Detroit.
 R. A. Richards, Au Sable.
 D. W. Smith, T. B. Rayl Company, Detroit.
 L. Hayward, Michigan Stove Company, Detroit.
 D. C. Kay, Freeman, Delamater & Co., Detroit.
 M. G. Pierson, Freeman, Delamater & Co., Detroit.
 Geo. Cummins, Buhl Sons & Co., Detroit.
 W. A. Towner, Towner Hardware Company, Muskegon.
 T. T. Crandall, Art Stove Company, Lansing.
 G. J. Shaefer, Dundee.
 Charles Campbell, Art Stove Company, Detroit.
 J. A. Weston, Detroit Stove Works, Lansing.
 Smith & Weston, Lansing.
 F. R. Lawrence, Detroit Stove Works, Lansing.
 Allen Crawford, Jr., Allen Crawford & Son, Springport.
 D. L. Lazelle, Lazelle Bros., Caro.
 Earl Sanford, Peninsular Stove Company, Detroit.
 Frank McCall, Berry Bros., Detroit.
 D. C. Delamater, Freeman, Delamater & Co., Detroit.
 A. K. Edwards, Edwards, Chamberlain Hardware Company, Kalamazoo.
 Wm. P. Culver, Portland.
 C. S. Biggs, Garry Iron & Steel Roofing Company, Cleveland, Ohio.
 Fred. H. Cozzens, *Trade*, Detroit.
 James Haight, Britton.
 J. L. Schneider, Peninsular Stove Company, Detroit.
 Emil Bernhard, Saginaw Hardware Company, Saginaw.
 O. H. Russell, Russell & Randolph, Petersburg.
 Thos. J. Chamberlain, Freeman, Delamater & Co., Detroit.
 W. J. Boyce, S. L. Boyce & Son, Port Huron.
 E. P. Cudworth, Armada.
 John W. Jochem, John A. Jochem Company, Ishpeming.
 J. W. Thorn, E. Bement's Sons, Owosso.
 Fred. J. Cook, Fowlerville.
 Robson Bros., Ovid.
 Frank A. Marshall, Ovid.
 Geo. A. Wilcox, Wilcox Hardware Company, Adrian.
 H. D. Whittlesey, Sherwin-Williams Company, Cleveland, Ohio.
 H. B. Gunness, Algonac.
 L. J. Fasquelle, Sherwin-Williams Company, Cleveland, Ohio.

H. P. Everett, Stockbridge.
 C. De Young, Crystal.
 J. J. Teeple, Teeple & Caldwell, Pinckney.
 R. B. Bloodgood, G. W. Bloodgood & Sons, Jackson.
 C. Dale Downing, B. J. Downing & Son, St. Charles.
 Edwin D. Foote, Foote & Church, Flint.
 Chas. F. Bock, C. F. Bock & Son, Battle Creek.
 F. M. Brockett, L. B. Brockett & Son, Battle Creek.
 H. T. Taylor, Taylor Bros., Adrian.
 J. Chas. Ross, Standart Bros., Detroit.
 Geo. H. Foote, Standart Bros., Detroit.
 I. A. Mills, Standart Bros., Detroit.
 Earl M. Norton, Lansing.
 T. H. Gibbs, Coleman.
 Frank Stahl, Stahl & Son, Lansing.
 J. A. Alyander, Lorain, Ohio.
 A. N. Patriarche, A. N. Patriarche & Co., Marquette.
 Geo. W. Leedle, Leedle Bros., Marshall.
 J. C. McElroy, Fletcher Hardware Company, Detroit.
 G. E. Hain, Fremont.
 Wm. W. Hixson, Bay City.
 A. C. Stuetzer, Detroit.
 Geo. W. Cope, *The Iron Age* and *The Metal Worker*, Chicago, Ill.
 J. B. Sperry, Port Huron.
 Arthur J. Scott, Scott Bros. & Delisle, Marine City.
 F. A. Turner, Caro.
 Geo. B. Ratz, Brighton.
 Hunt, Roehig & Noah, Detroit.
 G. W. Gust, Morenci.
 Chas. E. Moore, Morley Bros., Saginaw.
 A. T. Fletcher, Foster, Stevens & Co., Grand Rapids.
 A. Harshaw, Delray Hardware Company, Delray.
 J. H. Treggs, E. B. Rorick & Co., Morenci.
 M. E. Power, Hudson.
 H. W. Weber, H. W. Weber Hardware Company, West Bay City.
 C. T. Peltier, Fletcher Hardware Company, Petoskey.
 E. B. Baldwin, Fletcher Hardware Company, Marquette.
 Fred. Beach, McIntosh-Huntington Company, Cleveland, Ohio.
 H. G. Campbell, McIntosh-Huntington Company, Cleveland, Ohio.
 H. Reichert, Standart Bros., Detroit.
 Porter A. Wright, P. A. Wright & Co., Davisburg.
 Andrew Muehlig, Muehlig & Schmid, Ann Arbor.
 Geo. N. Smith, Hillsdale.
 H. W. Anesler, Hillsdale.
 John Popp, Popp & Wolf, Saginaw.
 Chas. Gartner, Gartner Bros., Wyandotte.
 I. Stearns, Michigan Safety Furnace Pipe Company, Detroit.
 E. J. Foster & Bro., Grass Lake.
 W. J. Benton, W. J. Benton & Co., Detroit.
 Louis P. Church, Foote & Church, Flint.
 David S. Phelps, Detroit.
 G. T. Gready, South Lyons.
 B. F. Schumacher, Schumacher Hardware Company, Ann Arbor.
 G. M. Bruske, Saginaw.
 G. A. Kauters, Kauters Bros., Holland.
 J. H. Lyons, Sidney Shepard & Co., Buffalo, N. Y.
 G. W. Patterson, Detroit Stove Works, Columbus.
 O. L. Barrett, Barrett Hardware Company, Union City.
 C. E. Pipp, Otsego.
 D. F. Hunter, Menette.
 H. Thurber, Detroit.
 C. H. Millen, Detroit.
 H. F. Chatfield, Trenton.
 Earl Michael, Fremont, Ind.
 E. N. Fenn, Patterson-Sargent Company, Cleveland, Ohio.
 J. S. Capen, Chas. A. Strelinger Company, Detroit.
 W. H. Eldred, Morley Bros., Saginaw.
 J. J. Mahoney, Lansing.
 S. G. Crankshaw, Mayville.

New Members.

The following new members were added to the rolls of the association during the convention:

Thompson Hardware Company, Marquette.
 Foster Hardware Company, Grass Lake.
 Wixson & Bastinek, Minden City.
 James Haight & Co., Britton.
 Orrin A. Kelley, Milan.
 F. W. Kaun, New Buffalo.
 D. L. Whitmack, Tecumseh.
 Frank B. Hatch, Milford.
 F. C. Goddeyne, Bay City.
 O. H. Russell, Pittsburgh.

Robinson Bros., Ovid.
 F. A. Marshall, Ovid.
 F. J. Cook, Fowlerville.
 C. De Young, Crystal.
 Teeple & Cadwell, Pinckney.
 C. Dale Dowling, St. Johns.
 A. W. Patriarche & Co., Marquette.
 Geo. W. Leedle, Marshall.
 G. W. Grist, Morencie.
 Delray Hardware Company, Delray.
 C. E. De Clements, Detroit.

New Honorary Members.

C. H. Millen, Manchester.
 Hawley E. Daines, Detroit.
 J. Chas. Ross, Detroit.
 Geo. H. Foote, Detroit.
 Geo. J. Bradbeer, Detroit.

WEDNESDAY AFTERNOON.

The convention was called to order on Wednesday afternoon by President C. G. Jewett of Howell, who directed Secretary Henry C. Minnie of Eaton Rapids to call the roll, after which a Committee on Credentials was appointed, consisting of W. A. Tower of Muskegon, J. W. Jochim of Ishpeming and F. J. Cook of Fowlerville.

The Mayor's Interesting Address.

These formalities having been concluded, Mayor Maybury of the city of Detroit welcomed the members of the



H. W. WEBER.

convention and their friends in a brilliant speech, in which he alluded gracefully to some of the time honored names connected with the early days of the local Hardware trade, and referred to the changes which had since taken place. Hardware stores were then largely given up to the sale of Tools and Farming Implements, but they are now places of art, which people visit to see as well as to buy. He dwelt upon the introduction of taste and attractiveness in the fashioning and finishing of goods in these days, and claimed that men now make their business instead of letting their business make them. He expressed the desire that a more kindly feeling should be cultivated between the merchants and manufacturers of Detroit and the business men of the other parts of the State, and ended with facetious remarks relative to the key of the city.

President Jewett responded, accepting the kindly welcome in behalf of the association, and expressing much gratification at the cordial greeting extended by the citizens of Detroit.

Routine Work.

After a brief recess the Committee on Credentials reported 100 names registered at that time of members entitled to seats in the convention. The minutes of the last annual convention were read by the secretary, also minutes of meetings held by the Investigating Committee on October 12 and January 17, to settle complaints by mem-



FRED. H. COZZENS,

bers against jobbing houses and manufacturers who had been selling to consumers, all of which were adjusted satisfactorily save one. The minutes of a meeting by the Executive Committee on April 11 were also read.

C. G. Jewett read the following:

President's Address.

It augurs well for our association that personal interest in its success has attracted so many of you to this, the fourth annual meeting of this organization, and confesses to your desires to take part in helping to extend its usefulness.

I congratulate you on the healthy condition of your association and venture to prophesy that, stimulated by your continued enthusiasm, it will become a larger and more potent force to protect and conserve the interests of its present and future members.

HARMONY AND TRANQUILLITY.

During the year in which I have had the honor to act as the executive head of your organization, I have been called upon to do little more than the routine duties which are inseparably associated with like offices. The association has had no disagreements within its own membership to tranquillize. Its crusade against offending manufacturers and jobbers has been with one exception settled to the satisfaction of your executive board and harmony restored. There has arisen during the year no great question of polity or economy to discuss and adjudicate.

We have drifted with the tide, inspired to efforts only in the direction of existing ties of membership and of forming new ones. We have held our own and more, too, and that is something to be modestly proud of in view of the fact that our country has passed through the throes of war with a foreign State and the commercial interests of our country have had most unusual trade conditions to contend with.

ASSOCIATION'S PURPOSE.

Our association has a purpose, I take it, or else we would not be organized. We hope by association and yearly exchange of ideas, new and otherwise, to improve ourselves in a social and business way. We have here, gentlemen, a judicious combination of like interests for mutual protection. We wish to better ourselves as merchants, to improve our methods of merchandising and to get closer in touch with the trade which we in part represent and of which we are the vital arteries.

BETAILERS AS BAROMETERS.

We are nearest to the consumers, and being nearest act as signalmen to the manufacturers, giving notice of the ebb and flow of visible staples in our line. Barometers of the Hardware trade, if you please, revealing its conditions from time to time better than any other agencies that are dependent upon or related to it. I think it is for us to say first and with authority that prosperity has returned to the country in a large measure. We feel the pulse of it in our daily sales. We think it is permanent and yet we are able to see that the greed, or worse, of manufacturers may check the rising current and bring on an inertia and stagnation.

MANUFACTURERS' GREED.

How many of us during the year have not received in one form or another post-paid notices reading, "on account of the increased cost of raw material, all former prices are withdrawn. Will be pleased to quote new prices on application." Such notices have not been coming at infrequent intervals, but by nearly every post. What do they mean? Simply that the manufacturer, inspired by inordinate greed, bases his advances of 20 and 25 per cent. on 10 per cent. increase in wages and materials, and having the retailer at his mercy proceeds to rob him.

Now it is true that the price of ore and pig iron has advanced within the year. We are glad of it. We are glad of it because the only legitimate reason for its advance is in the increase of labor. But labor does not get what is its due. A 10 per cent. increase of wages is followed by a 20 per cent. increase of price of product. Every item of cost in the production of iron is an item of labor cost. Iron lies free in the bosom of the earth. With pick and shovel and derrick it is taken out by muscle. It is transported to the furnace by labor. It is smelted in conjunction with other materials which are the products of human labor. When it is pigged and ready for other refining processes, every ounce of it is representative of human muscle. We do not object to having wages advanced to a point at which the humblest miner may earn in the sweat of his face some of the comforts of human existence. What we object to is the piling on of prices for the benefit of the capitalist, who in turn first robs the middleman, the retailer and finally the consumer.

THE REPEATED ADVANCES

of prices of many of our goods are wholly unwarranted. They represent the *ipse dicit* of the powerful corporations which control the iron and steel industry of the country. Our only redress is in refusing to stock our shelves with goods at prices already strained to the breaking point.

Better that we act as messenger boys to our customers than that we should be mere slaves for the manufacturer and board ourselves at that. These same manufacturers who are so prompt to pay postage to notify us of an advance in prices will, when prices begin to decline in the not greatly distant future, not be loading the mails with notices that will read: "On account of the continued decline in the cost of raw material all former prices are withdrawn, and we will be pleased to quote you lower prices upon application." On the contrary, their traveling representatives will be sent out with complete instructions to unload stock onto the retailer as far as possible before the decline becomes generally known.

They look upon us as easy creatures who love to be fleeced and who never protest, even when the process is attended by a few careless pokes in the ribs.

INEQUALITIES.

We know how difficult it is to explain to our customers why we are obliged to charge them a cent a pound more for their Nails because we have been obliged to pay a cent and one-half more a pound to the makers. We know how our farmer friends shy at a 10 per cent. increase of the selling price of Milk Cans, notwithstanding we have been obliged to pay 20 per cent. more. The manufacturer doesn't know about our troubles, and he doesn't care. "On account of advance in raw materials," he writes, and we are compelled to submit. Ours not to reason why beyond his *ipse dicit*; ours but to duck and buy and give our patrons the benefit of an explanation and ourselves the benefit of a net loss. We protest against this sort of thing because it is robbery. We protest because we think it monstrous that one man at the head of the iron and steel industry should accumulate a fortune of \$250,000,000 while millions of men are in want and despair.

It would be better for the prosperity of the country if 250 men made one million apiece, and better still for 500 men to make a half million each.

DEPARTMENT STORES.

The modern department store is the greatest menace to our business so far as its immediate effects are concerned. The competition that it puts up is sinister and fraudulent. It is a competition based on cheapness first, maintained on cheapness all the time, and culminating in cheapness. The proprietor of a large store finds himself with unused floor space, or with space that can be congested with present stock of goods to make room for an innovation.

He thereupon clears a corner on one of his floors and presently installs a Bicycle department. He begins by buying cheap wheels. He can market them without entailing any additional cost for rent and generally nothing extra for help. Thereupon he offers his cheap wheels "as good as" standard wheels for amazingly low prices. He gets the trade. The suckers will bite. If the wheel turns out badly the buyer consoles himself with the reflection that it cost him but little any way.

TAKING UP HARDWARE.

With this beginning it is only a step to Lawn Mowers and to Shelf Hardware. The expense of maintaining a Hardware department is seen to be small. He buys cheap stuff and sells cheap because it costs him little or nothing to speak of. If the goods are complained of the customer is given the laugh and informed that there was no warrant on the goods. He sells for 10 cents a Hammer that would not be accepted as a gift at a regular Hardware store. He makes 100 per cent., where the regular Hardware dealer may only have made a little margin on a good one at 50 cents.

The department store has incurred little additional expense, while the regular dealer has many times the money invested and entails all the expense of store rent, clerk hire, large investments, and holds himself responsible for the high quality of the goods he offers for sale.

COMPLAINTS.

If any complaints are made it is to the regular dealer and not to the fake. I need not enumerate the manifold evils of the department store, but you are all familiar with the taunt from your customers that "I can buy this or that article of Montgomery, Ward & Co. at such and such a price." Their cash always accompanies their order to Montgomery, Ward & Co., while the regular country merchant would be glad to see the cash from the same customer for goods he had sold him a year before.

RETAILER FEARLESS OF FAIR COMPETITION.

It takes the livelihood from the many to give swollen gains to the few. It destroys independence of business spirit, and makes vassals and slaves of men who are competent and eager to own and manage stores of their own but who cannot stand up and sell goods of known high quality in competition with department store highwaymen and bazaar store brigands. The small retailer does not fear competition that is open and on equal terms. He holds that he can compete with his rivals who are not advantaged by the power of consolidated capital, but he can-

not compete with a rival who sells everything on a cheap basis and nothing at all on a fair competitive basis and a like quality of goods. Therefore he is opposed to department stores.

DEPARTMENT STORE MISCHIEFS.

He does not waste time and talent in combating the sophistical plea that a cheapening of cost of merchandise by way of the department store system inures to the benefit of the consumer. He knows that the system is conceived in cheapness and that the execution of it depopulates whole mercantile districts, makes one position or job appear in the place of two, stultifies manhood, and debauches ambition. He knows that a community is the most prosperous which harbors the largest number of stores and shops, whose stores stretch away over long distances and streets and leaves the country retailer to sell his legitimate trade instead of seeing it lured away to the city department store in a many storied building. He knows the immense advantage the department store proprietor enjoys, that he can pay rent of 20 stores in the rent of one; can utilize the services of three or four assistants in the services of one, and buying cheap stuffs in colossal quantities can make more money in his discounts than the average retailer can make in his legitimate profits.

He knows all about the so-called convenience of "buying everything from a toothpick to a smoked herring or a calliope under one roof," but he also knows of the irreparable mischief the system is to honorable merchandising.

REGULATING THE ABUSE BY LICENSE.

How can we sting the department store? How can we destroy its power for mischief? The answer is, by law. We make lawyers, doctors, preachers, plumbers, barbers and teachers qualified for their professions, why not make merchants qualify for theirs? Because a man is qualified to practice medicine or preach we do not license him to practice law. Is it good logic that because a man may be a successful dealer in codfish he is qualified to buy and sell Sewing Machines? But the question of ethics here invites a field of academic discussion.

BY TAXATION.

There is another and more practical way to deal by law with department stores and to deal justly. That way is by taxation. If the department store proprietor takes to himself the merchandising of several classes of goods in derogation of the equal rights of the small dealer, let him pay taxes. He takes away the business of the boot and shoe man, the grocer, of the haberdasher, of the milliner, of the bookseller, of the dry goods man, of the Hardwareman, of the butcher and baker and candlestick maker, and pays the taxes of only one. Make him pay taxes for all. That is just and right. It is democratic.

He absorbs and appropriates the profits of several; it is but grim and compensatory Justice that he should pay the taxes they would pay. Did he not drive them out of business? Can he be made to do it without impinging upon equal rights? I think so.

TAXATION ABROAD.

I quote from a report to the effects of taxing department stores in Prussia, Bavaria and Saxony:

"For years, definitely beginning with 1896, the Prussian Diet has been struggling with the issue. In that country individual rights are protected and individual responsibilities defined and enforced. It was a Conservative member, Herr Von Brockhausen, who asked that the Government formulate a special, progressive tax upon the department stores, bazaars and kindred concerns, the proceeds of such taxes to revert to the cities and districts in which such concerns were located. An analogous spirit was displayed at about the same time by the legislative assemblies of Bavaria and Saxony; and, as to the latter, with tangible effect."

According to Brockhausen's resolution, the rate was to be regulated by the gross business, so as to form an effective protection to smaller dealers, and by increasing the revenues, permit some of the taxes of other tradesmen to be reduced. Another object was to check the mercantile tendency toward consolidation into large firms and companies oppressive to the masses it was the duty of the State to maintain.

DETAILS OF THE TAX.

A measure embodying this sentiment is still before the Diet. As it last appeared, in April of the present year, it embodied five points, as follows: A progressive tax upon all establishments selling at retail goods of several different kinds; the tax to be applicable to all firms doing an annual business of 300,000 marks (\$71,400), on which might be reckoned a profit of 15,000 marks (\$3,570); the tax to be progressive in proportion to the number of different kinds of merchandise sold, as well as to the aggregate transactions; goods to be stipulated, and not to include agricultural products native to Germany; the whole revenue to be turned over to the city or commune in which the establishment is located.

In advocacy of the measure Herr Brockhausen arraigned with eloquence and detail the economic situation, portrayed the distress of small dealers, the overshadowing and blighting influence of such stores as the Bon Marche of Paris, imitated in Berlin, which, according to its founder, had extinguished 900 retail shops, and now does a business of 160,000,000 francs (\$30,880,000), sufficient to support 2000 stores of the smaller class. Nevertheless, his appeal excited nothing more definite than a statement from the Government that the proposed regulation must be left to the several States. In Saxony such a course has been taken, but certain commonwealths have neglected to avail themselves of the opportunity.

THE FRENCH SYSTEM.

France in 1880 imposed upon such stores as the Bon Marche a tax of 25 francs (\$4.83) for each employee, and a tenth of the rentable value of the premises occupied. This doubles where the number of employees exceeds 200, and trebles when it rises above 1000. Under this the Bon Marche pays annually a sum equal to \$81,830; the Magasins du Louvre \$83,569, and the Printemps \$22,581. Recently an effective attempt was made to increase the tax 17 per cent.

ABORTIVE BECAUSE POLITICAL.

I am aware that attempts which have proven abortive have been made in one or two of the States of this country to curtail the department stores. The trouble with these efforts has been that they have been promoted by the politicians for political purposes only. Not until the masses can be shown through education along the right lines the true character of the department store will it be possible to make a crusade that will result in making the owners of them pay their just share of the taxes, and paying such find themselves unable to keep out of business the thousands of retail dealers who are ruined by their taxless and soulless competition.

TRUSTS.

It is popular at the present time to denounce trusts as the source of all our industrial ills. Lawmakers and statesmen are

making themselves lots of trouble over trusts; politicians are chattering over their importance in politics; daily newspapers and monthly periodicals devote much space to them. We are told how they are organized, how they oppress the people, what their capitalization is, and much of everything concerning them except the one vital thing—namely, how to get rid of them.

WHY THEY ARE HERE.

Now the trusts are the normal product of industrial evolution. They are here obedient to the laws of conservation and self-protection, which are as natural as the laws of motion. Two fighting interests, both suffer while they fight; when they cease to fight and unite for the benefit of each other, both will prosper.

That simple truth is at the bottom of all trusts. It has been distorted, sandbagged, mobbed and rapped by virtue of law until what was once innocent in the beginning is the most alarming evil in our industrial economy. I think it is safe to say that nearly every manufactured article known to human industry is now controlled wholly or in part by one or more combinations or two or more corporations commonly known as trusts. I need not recapitulate the evils of trusts; what they do in strangling productions, prohibiting competition and throwing men out of employment.

ENRICHING THE STANDARD OIL COMPANY.

The railway trust is largely a myth. Under the laws the railway companies cannot form pools to divide traffic and fix rates, but the railways in a measure are the nursing bottles of the trusts. It may surprise you to know, but it is nevertheless true, that for many years the Standard Oil Company moved its oil at the rate of 90 cents a barrel, while its competitors had to pay \$1.50 per barrel for moving a like distance and over the same road, and that upon every barrel shipped by its rivals the Standard Oil Company collected from the railway company a rebate of 60 cents a barrel. What is true of the Standard Oil Company is true in greater or lesser degree of other great producing corporations which have had the benefit of freight discriminations. When the railways are compelled to pay their fair share of the taxes and to move my freight at precisely the same rate they move the freight of others, we shall suffer no more from the railways.

UTILIZING THE GERMAN IDEA.

I would tax the iron and steel trusts as Germany taxes the sugar manufacturers. The Germans have the sugar monopoly subservient to a law which taxes heavily a surplus of production above a fixed maximum; all above is taxed so heavily it does not pay to manufacture.

The result is the small factories have a chance for their lives and they all prosper. I need not try your patience by outlining my ideas on the cure of the trust curse. The cure for one in modified form is the cure for all. The strong arm of the taxing power must be extended to protect the feeble from the encroachment of the strong. What we want is equal rights for all and special privileges for none.

THE RESTRAINT OF TAXATION.

Trusts will not fight each other to death in competition. They must be discouraged by taxing them proportionately to the benefits claimed by their beneficiaries. We cannot rid ourselves of them by praying against them, by deplored their existence, nor by confessing our hopelessness to cope with them. They are mighty and unscrupulous. They are entrenched behind capital defended by the brightest minds money can command. It is your function and mine gentlemen, to appeal to the law for self-preservation, to ignore the glib tongued politician and patronizing demagogues, to apply to the trust problem the only restraint that we can command—the restraint of taxation.

President's Address Committee.

A committee to consider and report on the president's address was appointed, as follows: Charles F. Bock of Battle Creek, Henry C. Weber of Detroit and H. W. Weber of West Bay City.

Henry C. Minnie read the following:

Secretary and Treasurer's Report.

I am pleased to submit herewith my annual report as secretary-treasurer of this association, and which I trust may meet with your entire approval:

Active members at last report.....	144
Honorary members at last report.....	35
Active members added since.....	8
Honorary members added since.....	1

Total.....	188
Seven active members have withdrawn during the year, leaving the total membership at this date 181, made up as follows:	
Active members.....	145
Honorary members.....	36

Total.....	181
A net increase of two members since our last annual meeting.	

While the growth of the association has not been large it has been a healthy one, and while the increase in membership has not equaled that of the last preceding year, it has been due wholly to natural causes. The field is becoming narrower each year, and it will require our very best efforts to more than hold our own, when it is taken into consideration the great number of withdrawals which occur from one cause and another.

It is with sincere regret that I am obliged to report the large sum of \$443.50 in uncollected dues from the members, but trust that my successor in office will be more fortunate along this line, and that the financial statement at the close of the coming year will show a neat balance on the right side, which can only be shown by the prompt payment of each member's annual dues.

Your secretary has time and again urged upon all the importance of this matter, and has done the best he could, but, as the amount in each case is small, the members are careless in remitting, thinking, no doubt, that they will be present at the meeting, and will attend to it all at that time.

I rejoice that I am able to turn over to my successor the complete record of the doings of the Michigan Hardware Association since its organization, together with the books of account, which will be found correct in every detail. The duties of the office have been extremely arduous, but have brought to me greater pleasure than I am able to express. The friendships formed at these meetings can never be forgotten, and will always be found among my most pleasant recollections.

Were I to consult my personal feelings it would give me great pleasure to continue the work of the office, but my increasing business demands my whole attention, and it would be simply an impossibility.

It now only remains for me to assure you that when the duties of this office shall be put into the hands of your choice, it shall ever be my pleasure, as well as duty, to labor side by side with you and him in the upbuilding of the association, which has endeared itself to me in every way. To the officers and members about the State, I am deeply grateful for kindnesses received and assistance rendered, and whatever the future may have in store for me, I shall never forget the many acts of kindness by my friends among the Hardwaremen of Michigan.

FINANCIAL STATEMENT.

The financial statement in detail is as follows:

Receipts.

Cash on hand at last report.....	\$18.04
Membership, 8 at \$3 each.....	24.00
Membership, 1 at \$1 each.....	1.00
Annual dues.....	282.00
H. C. Minnie (temporary loan).....	84.16
Total	\$409.20

Disbursements.

Secretary-treasurer's salary for 1898-99.....	\$100.00
Printing and stationery.....	124.00
Postage and postal cards.....	78.00
Badges at Detroit.....	20.55
Stenographer at Detroit.....	14.75
Stenographer for the year.....	34.00
Mercantile Association of Michigan (contributions).....	25.00
Michigan Passenger Association.....	5.00
S. P. McDonnell (expense on committee).....	5.15
Telegrams.....	2.25
Exchange on members' checks.....	.50
Total	\$409.20

All of which is respectfully submitted.

A. H. Dane of Detroit read the following paper on

"The Experiences of a Traveling Man."

The general impression seems to be that a traveling man is a person chock full of good nature, who is up to all the fun and devilment of the day, who can sing a song, dance a jig or tell a story, lives on the fat of the land, has plenty of the firm's money to spend as he pleases, and whose life is a perpetual joke, and one continual round of pleasure without a care or responsibility of any kind.

THE TRAVELER A SERIOUS CHARACTER.

This is a great mistake. When in action the traveling man thoroughly appreciates the fact that his business is of a most serious character. That he is the personal representative of his house; in fact, the house. That every wheel that revolves, every workman, clerk, foreman, superintendent all along up the line to the officials and men who have their money invested, have the liveliest kind of an interest in his every movement. Every moment of his time is planned, sometimes weeks in advance, depending upon his success, and the responsibility is so great that the work of the traveling man is anything but the soft snap that most people think.

THE TRAVELER'S TRIALS.

He is practically ostracized from society. He can't quit at 6 o'clock, go home and spend the evening quietly with his family, or mix socially with the people of the town in which he lives. Living in hotels most of the time he breathes very little of the delightful air of the home, which you gentlemen enjoy daily the year round. He is frequently spoken of, not as the representative of some large commercial house, but as a drummer (they sometimes get mixed and call us bummers). I have heard them speak in the same manner of tramps. Some people have an idea that commercial travelers, as a class, are a disreputable, drinking, gambling, fast set of men. Do you, who come in daily contact with us, ever stop to think how seldom it is that you see one of our number intoxicated? Or how many do you know to be gamblers? In other respects, morally, do they not compare favorably with the business men of your town? Some of the warmest friends I have on earth are in their ranks. Were I in trouble and needed help nowhere would I get it quicker than from some of my competitors. A great many things are laid to a traveling man for which he is not responsible.

There is an old saying that "there is just as much difference in people as there is in folks." No two men are alike. The surroundings and circumstances in every case are different. Men cannot feel and be the same every day in the year. Constantly there is a great difference in buyers. Perhaps we can interest you by reciting our experience with some of them.

HOW SOME BUYERS BUY.

Arrived in the forenoon, was pleasantly received, but the buyer kept busy until noon, then went to his dinner, upon his return his partner and clerk went. When they had returned I managed to get the buyer's attention, and had just got nicely started in showing my line when he left me, got on his bicycle and rode away. My train left about 4 p.m. and as the time drew nearer and no Mr. Buyer appeared, and no one seemed to know where he had gone, I was naturally nervous and anxious. About 7 o'clock he showed up. As soon as possible I approached him and was coolly told that "his Sunday school class were having a picnic up at his house that afternoon. He had been up there freezing the ice cream and entertaining them, and he had eaten so much of the stuff that he had quite a bad headache and he really did not feel like buying anything to-day." I had lost a whole day, and he could have done his business with me in 20 minutes. Well. He has never had a chance to buy a dollar's worth of goods of me since. How would you have liked such treatment?

ANOTHER KIND OF BUYER.

Another buyer the boys are very fond of is the one who receives them in a cold, dignified manner, gathers all the information he can, carefully prices up his catalogue, tells them he doesn't care for anything to-day, and sends an order in to the house by mail sometimes before the traveler is out of town. The house, knowing the representative is there that day, writes him. He wonders if the firm thinks he was in town and didn't call upon the customer. He is worried, as he can recall no disagreeable circumstance during his visit and feels that the buyer has placed him in a bad light with his employers. He confides his troubles to a fellow traveler, who laughs and says "Oh don't let that bother you, I have called on that fellow for years and he never gives a traveling man an order." I called on one of this sort once for several years, and was never able to capture his fall order (which you all know is the big one in our line), although he was a fairly good customer of the house. One year early in January I told him how much I should appreciate tak-

ing the order for his fall needs, and was told that he always bought July 1, and if I happened along on that date I could have it. From that time on during the whole year I planned my trips accordingly, and the morning of July 1 I walked into his store, wreathed in a ten-dollar smile, shaking hands with myself that I had that order "clinched." After a few moments conversation I reminded him of his January promise, and his reply was: "Oh, I sent the order in by mail and the boys are now hauling them up from the depot." Talk about the "icy mitt," hoy would that please you?

STILL ANOTHER, THE RIGHT SORT.

Here is another style of buyer that we encounter. He has his office well toward the front of the store. He is usually right there ready to meet his customers, or the traveler, the moment they poke their nose through the door, giving a prompt and cheerful greeting. He doesn't give you the tips of his fingers, but takes hold of your hand and gives a good healthy grip and hearty shake, passes a few pleasant remarks; asks you when you wish to leave town, calls one of his clerks, tells him to make a memorandum of the goods on hand of the line you are selling. While this is being done, if he is not otherwise occupied, he generally plies you with questions and gains all the information he can. When the list is brought to him he loses no time in going over it carefully with you, buys what he needs of regular stock, asks if you have anything new, does the same with that. He is thoroughly posted, and you feel that you must keep him so. He does the work promptly in a clean cut, businesslike way. It's business first every time; then, if both have time to spare, he is one of the most congenial men to visit with you have ever met. I have yet to hear of his violating the confidence of a traveler. Have never heard him speak disrespectfully of his competitors. He is neighborly with them all, attends to his own business and does the best he can and lets them do the same, never stoic pigeons, the article that the other fellow has worked up a trade on. He started in a poor boy and is now on "Easy street." Is influential in his home town, respected and honored by his neighbors and occupies a very warm spot in the hearts of the traveling men. He doesn't do business with them all, but every caller receives respectful attention, and if he cannot buy he promptly and kindly tells them so. Time is money, and he saves much of it during a year by the methods he has adopted.

A BENEVOLENT DEALER.

At your meeting, held about a year ago, one of your members read a paper that was largely copied in the trade journals of the United States. In that paper the gentleman spoke so kindly of our fraternity, especially of the beginners, asking you to treat the young goslings tenderly, as they would soon be full fledged ganders and be able to take care of themselves, that it sounded like a fairy tale, but my experience is that that man practices what he preaches. I shall never forget the first time I called upon him. It was some years ago. I was new in the business and new in the line I was selling, and I presume it took him about three minutes to discover that fact. He didn't need goods, but out of the kindness of his heart and general good nature he gave me a nice little order, together with many valuable suggestions and some good advice that I afterward found to be right.

SOME FIGURES.

Through the courtesy of Mr. Ferguson, manager of R. G. Dun & Co., some figures are furnished me that may interest you in the State of Michigan. There are 421 Hardware dealers rated up to \$1000; 756 up to \$2000; 649 up to \$3000; 548 up to \$5000; 385 up to \$10,000 and upward; a total of 2759 dealers. Only 154 are members of your association.

Taking these estimates at the lowest figures, there is a capital invested in that particular line of from \$6,000,000 to \$7,000,000. Supposing this capital is turned three times during the year, the Hardware business of the State of Michigan amounts to between \$18,000,000 and \$21,000,000.

MICHIGAN MERCHANTS A MANLY CLASS.

With the exception of two years, the past 16 years of my life have been spent among the men handling this immense volume of business. The failures have been comparatively few. There are very few indeed who resemble the first two buyers I have mentioned; they are exceptions. The great big majority do business and are built more on the lines of the last two. My experience is that possibly from the fact that they do business largely with men.

They are a manly lot of men. There is not a sissy in the whole batch. Almost invariably they stand high in the community in which they live and are regarded as good, reliable, first-class citizens. I have many valuable acquaintances and some very warm friends among them, and I think I voice the sentiment of all the travelers who visit them when I say, "Our lines have fallen in very pleasant places," that we are permitted to call upon and do business with such gentlemen as are engaged in the Hardware trade in the great State of Michigan.

APPEARANCES ARE VERY DECEITFUL

sometimes. You frequently hear people who pride themselves on being shrewd judges of human nature assert that they can tell what a man is by his looks. I claim it cannot be done. The two years I have referred to were spent traveling in the State of Indiana. My headquarters were in Indianapolis, where I spent most of my Sundays. I arrived one Saturday afternoon, removed the stains of travel and, encasing my manly figure in a spick span new suit of clothes, left the Dennison House about 7 o'clock to walk down and call on our customer. I had gone but a few paces when a gentleman whom I had never seen before smiled and spoke very pleasantly to me. A little further and another one, and then another, and so it kept on. When finally a man rushed up to me, grasped me by the hand and said, "Hello, Sim, old boy, I saw by the paper to-night that you had returned." I told him that I had just returned but my name wasn't Sim. He appeared much confused, begged my pardon and retired, leaving me in the dark as to who this Sim that so many seemed to know was. Of course I thought it a rare good joke and took some pains to speak to every one in whose eyes I could detect a gleam of recognition, and I should say there were about a hundred of them before I reached the store. I went in laughing heartily, told the story to the customer, and asked him who it was that I so closely resembled. He thought a few moments. "Sim, Sim," then suddenly said, "Oh, I have it, you do look like Sim Coy." "And who is Sim Coy?" I asked. His reply was, "Oh, he runs a saloon and is a Democratic ward heeler. He was convicted of stuffing ballot boxes. He just returned to-day. For the past two years he has been in jail." Then everybody laughed but me.

Nebraska Merchant Gets Points.

Wm. Parkinson of Madison Neb., a visiting Hardware dealer, was called on and stated that he was attending

the convention to get points which might be used in working up an association in his own State, expressing himself strongly in favor of dealers organizing.

The Hustler.

A very entertaining address was made by Dudley W. Smith of Detroit, his subject being "The Hustler," and we regret that the pressure on our columns prevents us from laying it before our readers.

After some remarks by ex-President Henry C. Weber of Detroit, expressing his pleasure at the interest manifested in the work of the association, an adjournment was taken until Thursday morning.

THURSDAY MORNING SESSION.

Hon. Henry C. Smith, member of Congress from Adrian, Mich., was introduced by the president and read an entertaining paper on "Fence," which he treated as a general topic, covering a great variety of subjects.

Committee on Nominations.

The following Committee on Nominations was appointed: Chas. F. Bock of Battle Creek, W. J. Boyce of Port Huron and Henry C. Weber of Detroit.

The Question Box.

The Question Box was then opened and the following questions were discussed:

1. Are you in favor of a National Retail Hardware Dealers' Association?
2. Do Jobbers belong to the Michigan Hardware Association, and to what extent?
3. What will you do with a furniture store which puts in a Hardware line simply as an advertisement?
4. What are the real aims and objects of this association, and how can we best keep it alive?
5. What shall be done with jobbers who sell to department stores?
6. Is it right and just to the dealers that manufacturers and jobbers sell at retail?
7. How can a dealer keep his stock free from dead stock?
8. Do we realize profits from advances?
9. What policy should Hardwaremen adopt with reference to catalogue houses?
10. Is it advisable to have a mutual fire insurance department in connection with this association?
11. What is the best mode of collecting old accounts?
12. What line of advertising pays?
13. What is the best way to compete with racket stores and catalogue houses?
14. What is the best method of keeping Hardware catalogues?
15. How shall we avoid dull seasons?
16. Is it policy to cut prices on staple articles to meet competition from bankrupt stores?

Some of these questions were discussed at considerable length.

A National Association.

The first question, in regard to a National Association, called out quite an expression of opinion which, however, was not specially favorable to a National Association. Great stress was laid on the point that the membership in the State association should be greatly increased before a National Association was attempted. It was further believed that more work should be given to the formation of local associations so as to secure better relations among merchants doing business in the same town.

Jobbers Not Members.

The secretary stated in reply to the second question that no jobbers belonged to the Michigan Association, but membership is confined strictly to retailers.

Collecting Old Accounts.

An interesting answer to the eleventh question was made by one of the members, who described the method of collecting old accounts which has been adopted by the merchants of Yale. In this town a mercantile agency has been formed to which all the dealers belong, no matter what their line may be. They print at certain times a list obtained from all the dealers, giving the names of their customers owing them an account running over 30 days, and stating the amount thus due. A copy of this

book is carried by every merchant, it being small enough to put in his pocket. He then knows when a customer comes in whether the man owes another merchant and whether he owes any accounts of long standing. If he is a chronic debtor the merchant advises him to pay up his old account with other merchants before running up new ones at another store. The plan has worked well, and a great deal of money has thus been secured which probably would not otherwise have been paid.

The President's Address.

Chairman Bock of the Committee on President's Address reported a recommendation that it should be printed and mailed to every member, which was adopted.

Election of Officers.

Chairman Bock also reported the following recommendations made by the Committee on Nominations:

PRESIDENT,

Henry W. Weber, West Bay City.

VICE-PRESIDENT,

W. J. Boyce, Port Huron.

SECRETARY AND TREASURER,

Fred. H. Cozzens, Detroit.

INVESTIGATING COMMITTEE,

Jacob Stahl, Lansing.

G. W. Bruske, Saginaw.

W. A. Towner, Muskegon.

ENTERTAINMENT COMMITTEE,

C. G. Jewett, Howell.

Chas. Gartner, Wyandotte.

John Popp, Saginaw.

TRANSPORTATION COMMITTEE,

Frank Brockett, Battle Creek.

John Capen, Detroit.

H. A. Scott, Marine City.

Executive Committee, in addition to the president and vice-president and secretary, Geo. A. Wilcox of Adrian and Bert Edwards of Kalamazoo, for two years, and J. B. Sperry of Port Huron and G. W. Hubbard of Flint, for one year.

Resolutions.

A motion was adopted that all papers read and reports made should be printed and distributed to the members. Another resolution was adopted, extending thanks to the manufacturers and jobbers who had contributed to the entertainment of the members and to the trade press for favors extended and to the retiring officers for their efficient services.

The following resolutions were presented by T. J. Cook of Fowlerville, and were unanimously adopted:

Resolved, That the Michigan Hardware Association desires and hereby does most heartily commend and endorse the recent work of the Mercantile Association of Michigan and *Trade* of Detroit, in the excellent work they did in securing the enactment of the fraudulent advertisers' bill and the municipal employees' garnishee bill, as well as for the procurement of passage through both houses of the Legislature of an amendment to the garnishment law, so that a weekly paid man would be subject to garnishment; be it furthermore

Resolved, That as business men we desire to record our most emphatic protest against and condemnation of the chief executive of this State for his unjust and unwarranted action in vetoing this law, against which no honest man can find fault; and be it further

Resolved, That we request the Mercantile Association and *Trade* to continue their work until they succeed in accomplishing this much desired result.

John W. Thorn, representing E. Bement's Sons of Lansing, speaking in behalf of the traveling salesmen present, made an eloquent address, in which he voiced the thanks of the fraternity for the welcome received from the convention and for the hearty invitation extended to them to participate in the entertainment features of the occasion.

Chas. F. Bock and Dudley W. Smith, who had been appointed a committee to conduct the new president to the chair, performed that duty, after which President Weber expressed his thanks for the honor conferred, and his intention to devote much of his time and energy to

advancing the purposes of the association, and especially toward increasing the membership.

The convention considered the selection of a place for the next annual meeting, when the names of Detroit, Grand Rapids and Mackinac Island were presented. No vote was taken, it being decided to refer the selection of a place to the Executive Committee, who were also empowered to select another date than the usual time in July if they should deem it best. It is expected that the committee will not decide this question until probably next January.

The convention adjourned *sine die*.

Henry W. Weber.

The new president of the Michigan Hardware Association, Henry W. Weber, was born in Detroit, December 14, 1854. His father was a Hardware merchant, who engaged in business in Detroit in 1853 and ran one of the largest retail stores in the city. He received a fair education and after some experience as clerk in mercantile establishments removed to West Bay City in 1873, where he learned the Tinsmith trade, with Moots & Rupff. In 1877 he engaged in the Hardware business on his own account, incorporating in 1897. His store is one of the finest in the State, all arrangements being of a character to systematically carry stocks as well as to make a fine display to attract customers. In addition to handling the regular Hardware line he carries a stock of Sash, Doors, Buggies, Wagons and Farm Machinery, and also conducts departments for electrical work and plumbing. A branch store is located at Omer, and is proving a successful investment.

Fred. H. Cozzens.

The new secretary of the association, Fred. H. Cozzens, occupies a conspicuous position in connection with the commercial interests of Michigan. He has for some time conducted a trade paper devoted to the interests of Detroit and Michigan, published under the name of *Trade*. Mr. Cozzens is secretary of the Mercantile Association of Michigan, and also of the Detroit Retail Hardware Dealers' Association. His connection with the trade in this way is expected to make his services of special benefit to the State Association.

CONVENTION NOTES.

The Entertainment Committee, consisting of Dudley W. Smith, Henry C. Weber and F. J. Maritz of Detroit, gave the association a taste of Detroit's summer pleasures by providing a boat ride on the Detroit River, which occupied the whole of Thursday afternoon.

The Reception Committee, appointed by Detroit business houses, embraced a large number of royally good fellows, just the kind to be on such a committee. Here are their names: A. H. Dane of the Michigan Stove Company, chairman; also of the same company, R. J. Waddell, Louis Hayward and J. E. Goodman; Fletcher Hardware Company, W. W. Wixson, W. H. Brown, C. T. Pettis, E. B. Standart, C. L. Frizelle, A. P. Backus and E. B. Baldwin; Peninsular Stove Company, C. F. Wetzel, J. L. Schneider, H. E. Lanford, C. H. Millen and R. W. Ballantine; Standart Bros., G. H. Foote, G. J. Kastenberg, A. C. Hempel, H. Reichert, J. H. Temmink, I. A. Mills, W. J. Dillen, J. C. Ross and A. C. Guilloz; Detroit Stove Works, J. A. Weston and F. R. Lawrence; Buhl Sons & Co., Geo. A. C. Cummer, E. M. Richardson, Claude Brown, C. V. Hetts, Geo. Morris, A. H. Nichols, J. F. Putnam and F. B. Coates; Art Stove Company, Charles Campbell and T. T. Crandall.

A fine exhibit of Paints was made in one of the Russell House parlors by the Sherwin-Williams Company of Cleveland, Chicago, New York, Montreal and Boston. Paints were shown in a variety of packages, as well as in the usual methods of displaying colors, but the specially attractive feature was a live chameleon from India, one of the very few ever brought to this country. The chameleon is the company's trade-mark, and the live

trade-mark shown was a winning card. The exhibit was in charge of H. D. Whittlesey and L. J. Fasquelle, who gave each visitor a dainty souvenir.

The P. D. Beckwith Estate, manufacturers of Round Oak Stoves, Ranges and Furnaces, were represented by J. O. Becroft and W. T. Leckie, who kept open house in one of the Russell House parlors.

A constant stream of visitors poured in and out of the Michigan Stove Company's parlor, where they enjoyed the hospitality of that bright salesman, A. H. Dane, commonly known as "Dell" Dane. Mr. Dane read a paper before the association, making a hit by carrying his paper in a tin can, suggestive of Governor Pingree and his "canned" speeches.

The Art Stove Company had quite a line of sample Stoves in one of the parlors, showing their new Art Laurel base burner, Crescent Laurel base burner, Popular Steel Range, Oak Laurel, Modern Laurel wood base heater, Regal wood cook and Royal coal and wood cook. The exhibit was in charge of T. T. Crandall.

E. C. Atkins & Co. of Indianapolis, Ind., made a fine display of Saws, embracing a full line of Hand Saws, Compass Saws, Back Saws, Buck Saw Blades, samples of Cross Cuts, &c. J. W. Perkins, the genial and popular assistant secretary of the company, entertained many visitors, assisted by A. J. Carson, Michigan salesman.

C. H. Millen, now with the Peninsular Stove Company, but for many years on the force of the Michigan Stove Company, and reputed to be the oldest Stove salesman in Michigan, was one of the most active workers in the interests of the association, apparently knowing everybody and appreciating exactly what to do in helping along the good cause.

I. Stearns, president of the Michigan Safety Furnace Pipe Company, exhibited a fine sample of a Furnace Stack, made of his double-walled safety Pipe. In this Pipe the inner walls form the cross walls, so that the Pipe cannot bend in nor buckle. It is made in sections, so that any length can easily be fitted.

The Sykes, Vickery Company of Detroit exhibited a fine array of samples of their dust proof, adjustable brush carpet sweepers. The leading sweeper in this line is the Ladies' Favorite. The carpet sweepers made by this company have a special feature in the Economy adjustable end plates, so that the brush can be reset when worn, which adds considerably to the life of the sweeper.

William Parkinson, a Hardware dealer in Madison, Neb., being East on business, stopped over in Detroit to attend the convention and get some pointers on the subject of organization with a view to getting up a State association in his own commonwealth. Mr. Parkinson is a native of Michigan and was one of the first traveling salesmen sent out to represent the Michigan Stove Company. He has already done some work in cultivating a sentiment in favor of a Nebraska association, and proposes in January or February, which is the Nebraska dealers' dull season, to take steps to secure a meeting.

While in Detroit last week a representative of *The Iron Age* called upon the T. B. Rayl Company, whose fine Hardware store is one of the attractions of the heart of the city. It is located on the leading thoroughfare, being at 112 and 114 Woodward avenue. T. B. Rayl, the senior partner, is a veteran in the trade, but as active as ever in pushing business. It might be inferred from his paper on "The Hustler," read before the Hardware Association, that Dudley W. Smith, another partner, is a man of ease and leisure, but he is credited by his competitors with being almost a human steam engine. Another partner, Geo. A. Hamilton, entered this firm at the beginning of the year after 27 years of service with the Russell & Erwin Mfg. Company. These, with Alex. Paton, another partner, form quite a big four in local Hardware circles. Their store occupies the whole of a five-story building and a big basement in addition.

The badge worn by the members was both handsome and appropriate. It consisted of a celluloid disk suspended from a bar. On one side of the disk was a picture of a padlock and on the reverse the Michigan coat of arms.

The boat ride on the Detroit River on Thursday afternoon was greatly enjoyed despite an incessant downpour of rain. Ample entertainment of a varied character had been provided, and not a dull minute was permitted from start to finish. Everybody wore a boutonniere presented by the Acme White Lead & Color Works of Detroit.

About Clerks.

BY A MERCHANT.

HELP.—It is a mistake to employ clerks who do not properly look after their employers' interest. A customer gets his impressions of the house by the treatment he receives from its clerks. He may be repelled or drawn toward them.

ATTRACTING TRADE.—A business to be successful must have power to attract and hold custom. A clerk who fails to do his share in this direction is a positive injury and should be dismissed.

ELEMENTS OF SUCCESS.—The success of many men in business has not been solely their shrewdness, but ability to correctly read human nature and surround themselves with efficient and reliable help.

QUALIFICATIONS.—Some of the qualities of the good clerk are loyalty to his employer, alertness in attending to the wants of customers, politeness and geniality of manner, honesty and industry.

DISLOYAL CLERKS.—The disloyal clerk should be promptly discharged. He may be bright, intelligent and industrious, but he will do his employer harm. He will be continually making unfavorable comparisons between his employer's business and others in the town, sparing no pains to inform those who will listen to his twaddle how much better the business might be run. Nothing suits him about the store and he scatters the seeds of discontent among his fellows.

ARTFUL DODGERS.—The clerk who dodges out of sight when a customer enters, instead of approaching him with a smile and pleasant word, is also a hindrance.

BASHFUL CLERKS.—It may be diffidence or natural disposition which keeps him in the background and allows his less experienced comrade to go to the front, but the employer should keep his eye on his men and encourage the timid ones to throw off their modesty and always be prepared to greet people promptly.

COURTEOUSNESS.—Politeness and geniality go a long way in holding trade, but with it the clerk must be well informed and qualified to intelligently explain the goods he attempts to sell. Gruffness and curtiness are calculated to repel buyers.

PUNCTUALITY.—Promptness in sending out parcels has much to do with the welfare of a business.

AN INSTANCE IN POINT.—A party bought some goods at a store and asked that they be delivered that evening. Through carelessness of the clerk, however, who waited upon the lady the goods were not sent as requested. The next day was very rainy in the morning and it was supposed that noon would do. But before that time the customer, who probably thought the establishment considered her unworthy of credit, called and informed the salesman that he need not trouble to send her parcel, adding that there were other hardware stores in town, leaving the store without waiting for explanations.

BALDWIN, ROBBINS & CO., Boston, are now occupying their new quarters, 97-103 Pearl street, where they are rapidly getting their large stock in first-class shape for quick handling. One half of the ground floor of the building is occupied by the sales department and the other as a shipping room, with offices in the rear of both. The building is equipped with an extra large elevator and is generally well adapted to the wholesale Hardware business.

Combinations and Trusts.

BY E. H. LOYHED.

A paper read at the Annual Meeting of the Minnesota Retail Hardware Association, February 9, 1899.

(Concluded.)

The Competitive System

which makes possible these results, is a pleasant subject for writers and students to contemplate in their lucubrations upon the progress of our country. It has been a good thing for the consumer, provided that "he had the price."

They can enjoy these wonderful strides in invention, the utilization of waste products, our labor saving machinery, our tremendous factories and all that, but to the man who has been part and parcel of it all it is another story. It is true that "competition first forces capital into the most profitable channel, and stimulates the capitalist to make the most of his resources." It is true "that competition for remuneration keeps laborers up to the fullest expenditure of their energies," but human endeavor has a limit, and there comes a time when there appears but little to gain in further struggle and everything to win by a combination. The scale upon which business is now carried on is so great that private individuals have difficulty in coping with work that can best be undertaken by public companies, whose affairs are managed by more than a single individual. "Man is least dependent on other men when he wants least, cares least, has least, knows least and is least."

"The beginning of barter is a confession of mutual need, and the coinage of money a declaration of dependence to all men."

The business owned and managed

By a Single Individual

is handicapped by himself. It is subject to his knowledge, his ignorance, his caprices and his whims. Let his habits be ever so good, his intelligence above an average, his industry untiring, yet his business is nevertheless the product of his limitations. The morning of his business life is spent in learning; the full flood of his noonday is, alas, too short, and the deepening shadows fall before he can fully realize that his day has hardly passed its early dawn. The uncertainty of life does not permit all men to go past, or even to reach, their meridian. On the other hand,

Corporations

have a life, the limit of which is fixed by law, and the mutability of the isolated individual has no effect upon their business. They employ men skilled in the affairs they are engaged in; men who are in their best years, some younger, some older, but still at their best. Whenever their work deteriorates from whatever cause, age, habits or indifference, they are put aside, and new men, fresh for the fray, take their places. What is true of corporations in regard to their management is true of

Combinations and of Trusts.

"Every one of these frequent changes which tells us of the conversion of private firms into public companies shows a disposition to trust less to individuals working for their own profit, and more to good organization and steady care of paid managers and other employees."

Co-operative concerns, often of limited capital, have attempted business in this way with marked success. The ideal combination is not one of capital alone, but of capital and labor, each dependent on the success of the whole. A combination is really the co-operation of its integral corporations. Ten years ago Andrew Carnegie said:

"The fashion of trusts has but a short season longer to run, and then some equally vain device may be expected to appear when the next period of depression arrives, but there is not the slightest danger that serious injury can result to the sound principles of business from any or all of these movements. The only people who have reason to fear trusts are those foolish enough to enter them. The consumer and the transporter, not the manufacturer and the railway owner, are to reap the harvest."

Even trusts are not infallible. Up to the present time most of them have succumbed because of undue greed. They did in many cases raise the price of commodities unduly, but with what result to themselves? They failed. Why? The very fact that they did so raise prices invited new competitors which the trust had to buy up. The Hardware dealer can point to numbers of these trusts whose "vaulting ambition o'erleaped itself and fell upon the other side." The National Cordage Company and the last previous Wire Nail trust are instances.

In fact, the method of procedure with nearly all trusts was along this line when Mr. Carnegie wrote the words I quoted; but while corporations have no souls they are possessed of brains to a high degree, and the multitude of new companies now forming will probably avoid the pitfall of

Undue High Prices,

which brought former combinations to grief. When a combination is made, and prices are raised somewhat, there is an immediate outcry against all trusts. The consumer has become so accustomed to the descending scale of prices that any advance is in the nature of a shock. He does not stop to inquire whether the former low prices were too low, but jumps to the conclusion that he is being robbed.

Last spring when wheat was \$1.25 a bushel, the farmer smiled and thought he was at last getting somewhere near what his grain was worth, but the laborer in the cities cursed the wheat corner. In the summer when the price of Manila fiber advanced to about 8 cents and Binding Twine in proportion the farmer condemned the Twine Trust, the States Prison Board, the country merchant, and everything else he could think of, while the Cordage companies and dealers made money for about the first time since the National Cordage Company went under.

While labor has not been benefited in proportion to capital by the concentration of production which has cheapened products, it is

Far Better Off.

than under the older way. "Look at the cigar makers in their gloomy homes in the larger cities and the toilers in the sweat shops for an answer. They are the victims of a survival of past labor conditions in an age which has become familiar with better ones." Modern thinkers have come to know that "labor saving machinery, whether owned by individual or trust, must purvey its product to the masses. The price must be made low enough to be within reach of the masses. There can be no adequate return on the capital invested in working for the rich alone. The necessities of the masses are becoming cheaper. Yachts and champagne are not."

On the other hand, while these combinations of capital endeavor to secure economy of production, there are combinations for securing a combination of commercial power, but when that most

Successful Combination.

the Standard Oil Company, adopts the policy of lowering rather than raising prices, and says that the reverse policy is suicidal, not only from failure to sell the monopolized product but from the certainty of inviting competition, we can base a hope that other monopolies will begin to understand the reason for its success, and follow out its line of policy without waiting for a law to be passed compelling them to do so.

There will be trusts with whom the law must deal, and a way will be found to do it. It is useless to talk of

Abolishing the Trust.

It can't be done; we have tried, but it has come to play its part on the commercial stage, just as the guilds played theirs, and just as competition has played its part in the evolution of trade. They may regulate themselves or they may be dealt with by law. No man can see the future. It is useless to say what will be the end of monopolies.

State ownership is urged. It may be all right to a certain extent. Some writers seem to think that State ownership is a failure. It substitutes one ring for two.

Limitation of prices by act of law merely causes a monopoly to reduce its efficiency instead of its rates.

England has tried it, and makes a face every time she thinks of the results.

Control of prices is better, but prices may be put too low; a board of arbitration is not infallible.

Before we attempt

The Control of Trusts

we must begin with the individual, and teach him to respect the law. Whenever we have faced an important issue we all have tried to do our duty, but in the humdrum of our daily life we don't care much for laws. We all know that it takes a much larger majority to enforce a law than it does to pass it. There are too many technicalities and customs that should be obsolete in our practice of the law; too much talk about the unconstitutionality of a law. It is a case of "physician heal thyself."

It has been stated that "even if the owners of a trust are magnanimous and unselfish, which has hardly been true up to date, the centralization of the power of industry in a few hands is undemocratic, and makes the many depend on the few." This statement is no doubt very near the truth, but when the day comes that the many shall make the laws necessary to control those few, and shall see to it that the laws are enforced, it would seem that then there would be an ideal democracy.

Germany has a law now that would remedy one of the worst evils that we have to contend with in corporations and combinations. The provisions are in effect: That if a company desires to issue stock appraisers are appointed, and the company are allowed to issue stock up to 90 per cent. of the appraised valuation. There is food for thought here. Is this not part of the solution? I quote the following from Henry D. Lloyd, *North American Review* for June, 1884:

"We have given competition its own way, and have found that we are not good enough or wise enough to be trusted with this power of ruining ourselves in the attempt to ruin others. Free competition could be let run only in a community where every one had learned to say and act, 'I am the State.' We have had an era of material inventions. We now need a renaissance of moral inventions, contrivances to tap the vast currents of moral magnetism flowing uncaught over the face of society. Morals and values rise and fall together. If our combinations have no morals they can have no values. If the tendency to combination is irresistible, control of it is imperative.

"Monopoly and anti-monopoly represent the two great tendencies of our time. Monopoly the tendency to combination, anti-monopoly the demand for the social control of it. As man is bent toward business or patriotism, he will negotiate combinations or agitate for laws to regulate them.

"The first is capitalistic, the second is social. The first, industrial; the second, moral. The first promotes wealth; the second citizenship.

"The combinations are not to be waved away as fresh pictures of folly or total depravity. There is something deeper than that. The Aryan has proved by the experience of thousands of years that he can travel. 'But travel,' Emerson says, 'is the fool's paradise.' We must now prove that we can stay at home, and stand it as well as the Chinese have done. Future Puritans cannot emigrate from Southampton to Plymouth Rock. They can only sail from righteousness to righteousness. Our young men can no longer go West; they must go up or down. Not new land, but new virtue must be the outlet for the future. Our halt at the shores of the Pacific is a much more serious affair than that which brought our ancestors to a pause before the barriers of the Atlantic, and compelled them to practice living together for a few hundred years. We cannot hereafter, as in the past, recover freedom by going to the prairies; we must find it in the society of the good.

"In the presence of great combinations in all departments of life, the moralist and the patriot have work to do of a significance never before approached during the itinerant phases of our civilization. It may be that the coming age of combination will issue in a nobler and fuller liberty for the individual than has yet been seen, but that consummation will be possible not in a day of competitive trade, but in one of competitive morals."

Hodel & Espenderfer have succeeded Adolph Hodel, at Wahpeton, N. Dak.

System for Changing the Selling Prices in a Retail Hardware Store.

WE have an inquiry from an enterprising and progressive New England house for information in regard to a good system for making the selling prices of goods correspond with the cost of the goods. On this subject our correspondents say:

Another problem we have is in the difficulty of keeping up the prices for retail stock. Some of the difficulties, as they present themselves to us, are that goods are checked up, but the proper prices do not reach the retail boxes, so that the changes are not made as they occur and often the dealer can find no cost whatever. The answer to this, it would seem to us, would be to have some scheme so that by one entering, either on sheets or in book, duplicates could be made to be attached to convenient boards or books near the place of sale.

There is in these times a good deal of danger that the selling price of goods will not keep pace with the upward movement of the market, and merchants may unintentionally be giving their customers the benefit of unduly low prices.

We shall be glad to have advices from the trade in regard to any system by which the retail selling prices can be readily kept correct and up to date.

Among the Hardware Trade.

Bothwell & McFarland, Hannibal, N. Y., who are dealers in Hardware, Stoves, Tinware, Farm Implements, Sporting Goods, &c., have recently rented premises which they will use as a storehouse and salesroom for Doors, Sash and Blinds.

Stoutenburg Bros., Keithsburg, Ill., have disposed of their Hardware business to S. W. Smith and will hereafter devote their entire attention to the interests of the Stoutenburg Mfg. Company, of whom F. W. Stoutenburg is president; Chas. Stoutenburg, secretary and treasurer, and A. P. Cannon, superintendent. The company manufacture the Cannon Oiler.

C. W. Bowtell, Stoves, Hardware and Plumbing, Fort Edward, N. Y., has added a stock of rough and dressed Lumber to his business.

W. E. Dockery & Son have succeeded W. E. Dockery in the Hardware and Farm Implement business at McDaniels, Ky.

A. J. Ayrhart has purchased the retail Hardware, Implement and Furniture business of Edwards & Brammer, Dedham, Iowa.

A recent issue of one of the local papers contains a long and interesting article concerning the large and attractive establishment of the John B. Varick Company, Manchester, N. H. The company occupy two large buildings, the main building being 40 x 100 feet, six stories and basement, giving a floor space of 28,000 square feet. This structure is almost exclusively devoted to retail trade in General and Special Hardware and Sporting Goods. The other building is mainly used for wholesale and shipping. It is four stories with basement, and 75 feet square, giving a floor space of about 25,000 square feet. Elsewhere in the city the company have several storehouses, 30 x 100 feet. They employ about 50 persons and have four salesmen on the road. The establishment was laid out with special heed to the particular requirements of the Hardware business, and is strictly up to date in all its appointments.

H. J. Brunner Hardware Company, Kansas City, Mo., issue catalogue No. 5, containing 180 pages, covering the following departments: Bicycle Material and Sundries, Screw Plates, Screws and Tools, Metals of all kinds, Checks, House Numbers and Porcelain Plates, Fancy Cabinet and Trunk Hardware, Electrical and Umbrella Goods. They also issue a supplement to the catalogue, with a new discount sheet, and refer to their catalogue and discount sheet as their traveling salesman. Mr. Brunner started a small repair shop 23 years ago with a capital of \$117. During the second year he added Umbrella Supplies, and in 1888 he opened Hardware and Bicycle Departments. The company were incorporated in 1891, with a capital of \$25,000.

The O'Hare Hardware Company have succeeded the Mitchell & O'Hare Hardware Company, Maysville, Ky.

Harvey & Dill have succeeded Mrs. M. Firner in the Hardware business at Prescott, Wis.

The Gorge A. Lowe Company have been incorporated, with a capital stock of \$140,000, to carry on the business formerly conducted by Mr. Lowe at Ogden, Utah. The stock comprises Heavy Hardware and Agricultural Implements, in which both a wholesale and retail trade is done.

Loree & Frantz, Boise, Idaho, were recently robbed of \$150 worth of Razors, Pocket Knives, Revolvers, &c.

On June 26 the D. & F. Kusel Company, Watertown, Wis., celebrated the fiftieth anniversary of the founding of their business. Daniel Kusel, the senior member of the firm, having conducted a store in Mecklenburg, Germany, for several years, came to this country in 1849, and settling in Watertown established a store on what is the present site of the D. & F. Kusel Company. The country in that region was new and the settlement small at that time, but the business prospered and has grown from a two-story structure, 24 x 40 feet, to the present fine establishment, having capacity for a \$30,000 stock. Two years ago the business was incorporated under the above title, with a capital of \$50,000. The company employ between 25 and 30 persons, and besides a local trade, do a wholesale business in a territory 20 miles around. Besides carrying General Hardware and Blacksmiths' Supplies, they conduct a Plumbing, Hot Water and Steam Heating and Sheet Metal department. Daniel Kusel, the founder, no longer an active member of the house, the business being continued by his sons and grandsons, is still hale and hearty, notwithstanding the fact that he is almost a nonagenarian, having been born in 1811.

The Louis Hoffman Hardware Company, Vicksburg, Miss., at their annual meeting on July 3 re-elected their old officers, Louis Hoffman, president and treasurer, and Frank J. Hoffman, vice-president. A dividend of 8 per cent. was declared. Mr. Hoffman embarked in business in 1857 and the stock company were formed in 1886.

Jolly, McDougal & Smith have succeeded Jolly & McDougal in the retail Hardware line at Tecumseh, Neb.

Geo. Staehle & Sons, Earville, Iowa, have purchased the business of McDonald, Richards & Waters, at Burt, which will be conducted under the management of Mr. Staehle's sons, Charles and Albert Staehle. The store is well arranged and 24 x 80 feet in dimensions.

J. M. Hodges has bought the stock of C. Brinkley at Jacksonville, Fla.

Lee & Stafford, Gowanda, N. Y., have dissolved partnership. A. C. Stafford will continue the business.

John Catron has removed his stock from Houston to Rosenberg, Texas, where he is now located. Mr. Catron carries Hardware, Tinware, Stoves, &c., to which he is intending to add furniture and undertaking.

C. L. Parsons' Hardware store, at Bancroft, Mich., was damaged by fire a short time since.

F. J. Nesbitt is now sole proprietor of the business of Roberts & Nesbitt Constantine, Mich.

Robinson & Mahan are successors to J. W. Robinson at Pine Bluff, Ark.

J. H. Bell has retired from the Bell Hardware Company, at Strong, Maine, and H. E. Bell and Fred. H. Bangs are continuing the business under the style of the Strong Hardware Company.

Owing to the ill health of A. L. Pease, sole managing partner of the L. Pease & Son Company, Hartford, Vt., it has been decided by the stockholders of the corporation to close up the affairs of the concern by assigning to Chas. P. Carpenter for the benefit of all creditors, the business to be sold as soon as possible.

T. J. Elmore's Hardware store, at Curryville, Mo., was robbed of \$100 worth of Pocket Knives, Razors and Scissors a short time since.

M. A. Heegaard has purchased the business of Wm. H. Heegaard at Watertown, S. Dak. The condition of business and the outlook are referred to as very good. crops showing up excellently.

R. J. Martin has purchased the business of F. J. Hetzel at Hancock, Iowa. Mr. Martin will refit and remodel the store.

J. C. Poole has opened a store at Biwabik, Minn., under the style of the Biwabik Hardware Company.

Samuel T. Smith's Hardware and Implement stock, at Laurel, Del., was recently destroyed by fire. The loss was \$10,000, on which insurance of \$2000 was carried. Mr. Smith resumed business at once in temporary quarters. He is erecting a new store on the old site.

C. F. Moore, Du Bois, Neb., has sold out his business to Charles Rousek.

The Hardware store of R. L. Cunningham, Adairsville, Ky., was burned out a short time since. Mr. Cunningham is rebuilding.

E. S. De Cow & Co., Sanilac Center, Mich., are enlarging their premises.

Handler & Rothschild have succeeded Westman & Rothschild, at Oskaloosa, Iowa.

Miscellaneous Notes.

Barrett's Glass Cutters.

Barrett's XXX glass cutters, manufactured by W. L. Barrett, Bristol, Conn., are now put up one dozen in a neat case and are referred to as making attractive show case goods. Mr. Barrett is making 15 different styles of his Practical glass cutters, including Circle Sweep for cutting circles, rounding lights, &c. This tool is made in three sizes, 8, 20 and 40 inches. The metal parts are nickel plated throughout and the bottom disk is rubber covered to prevent slipping when in use. The manufacturer advises us that he has on hand at present the largest orders for glass cutters ever received and that he has recently made some considerable shipments to foreign countries.

Steel Roofing, Corrugated Iron, &c.

The Reeves Iron Company, Canal Dover, Ohio, have added to their facilities a complete roofing and corrugating plant and are now in a position to quote prices on all styles of steel roofing, corrugated iron, galvanized eaves trough and conductor pipe, wire hangers, patent nested stove pipe, stove pipe elbows, &c. Reference is made by the company to the fact that they manufacture all their own sheets and the assurance is given that the finished material will be of high quality. The company have just issued a catalogue relating to the new line.

Art and Fancy Goods.

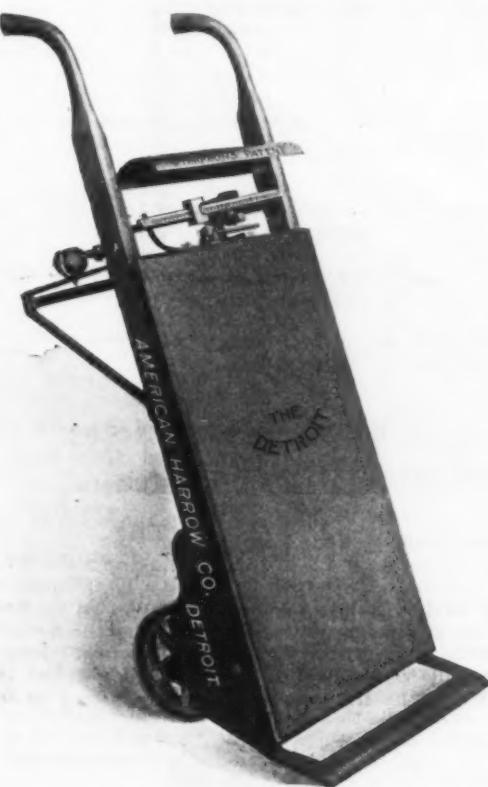
H. L. Judd & Co., 87 Chambers street, New York, manufacturers of various lines of art goods in addition to many staple goods, have just brought out for the ensuing season a line of standing mirrors, oval, round and square, in ebony finish relieved by tortoise shell. Also a line of Ormolu finished Minnette photograph frames in maroon, bottle green and navy blue, with combinations of velvet and gold. There is also a large assortment of new bronzes in smoking sets, the figures representing elephants, donkeys and dogs. Other goods include new celluloid figures with onyx bases, statuary, candelabra, candlesticks, mirrors, photograph frames and smoking sets other than those described above.

Detroit Truck Scale.

American Harrow Company, Detroit, Mich., are manufacturing the Detroit truck scale, here illustrated, which serves as a truck and scale to use in mill, warehouse, store, shop, farm, &c., first to move an object about and then to determine its weight. When an object has been carried to its destination and the weight of it is wanted the truck is dropped to a horizontal position and by moving a lever the weighing mechanism is thrown into gear, automatically shifting the platform with the load backward from the nose iron, so that the load is clear from any contact that would disturb accurate weighing, while making it easy to remove from the truck without interference with the nose iron. When the scale is thrown out of gear by the lever the platform and weight beam are locked, preventing all weight on the platform and jar or strain on the beam, relieving the scale mechanism of all wear when trucking only is being done. For the weighing of bulky materials, as wool, animals, stumps, &c., a special platform, crate or rack, which does not exceed 200 pounds weight, can be used, the crate, &c., being balanced

precisely by means of the tare beam, thus getting accurate net weights without figuring any deductions. The bearings of the scale are of fine pivot steel, drawn to a keen edge to secure precision. The metal portion is of first quality material, the wood work of seasoned stock, bound and braced with steel cross bars and channel iron supports. The weight beam and poise are finished in nickel

iron frame of the mill by clamps and rubber cushions, thus guarding against any danger of breakage. Improved grinders are used, which will pulverize coffee if desired. When the mill is fastened to the wall it makes a handsome appearance and enables the housekeeper to tell at a glance how nearly her stock of coffee is exhausted.

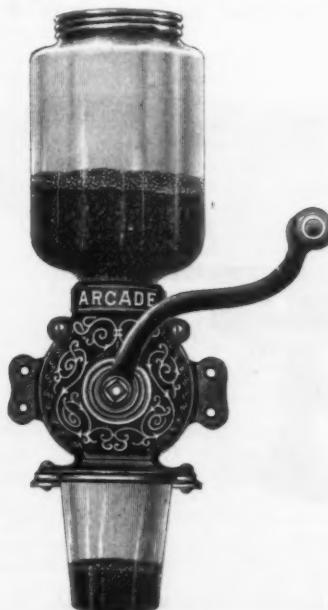


The Detroit Combination Truck Scale.

and carmine enamel and the whole group protected when not in use by a movable metal shield. The wood and iron work are finished in oil color and jet. It is made to weigh 800 pounds avoirdupois or 300 kg., metric system, according to the requirements of the trade. The manufacturers make special mention of the fact that it costs but little more than a scale alone, occupies only the room of a truck, and saves a great deal of time and rehandling.

The Crystal Coffee Mill.

Something entirely new in the line of coffee mills has just been brought out by the Arcade Mfg. Company,



The Crystal Coffee Mill.

Freeport, Ill., and christened the Crystal. It is herewith illustrated. This is a 1-pound mill, with both canister and tumbler made of bright clear glass, secured to the

The Chicago Autograph Time Recorder.

The Chicago Time Register Company, 1212 Fisher Building, Chicago, who have been on the market for some time with their key or numerical recorder for registering the time of employees, are now getting out an autograph recorder for which they claim many advantages. In recorders heretofore made the workman has been unable to verify the record he made at the time of registering, which has been the cause, not theoretically but in fact, of an endless number of disputes, and in such cases the employer has been powerless to prove the record, since obviously no one could swear to the accuracy of the record made on a machine so constructed that during the production of the record it was both invisible and to all practical intents inaccessible. With the Chicago recorders, both autograph and numerical, such disputes can have no reasonable foundation, because, should a workman question the correctness of the time credited to him, the bookkeeper can show the record made by the work-

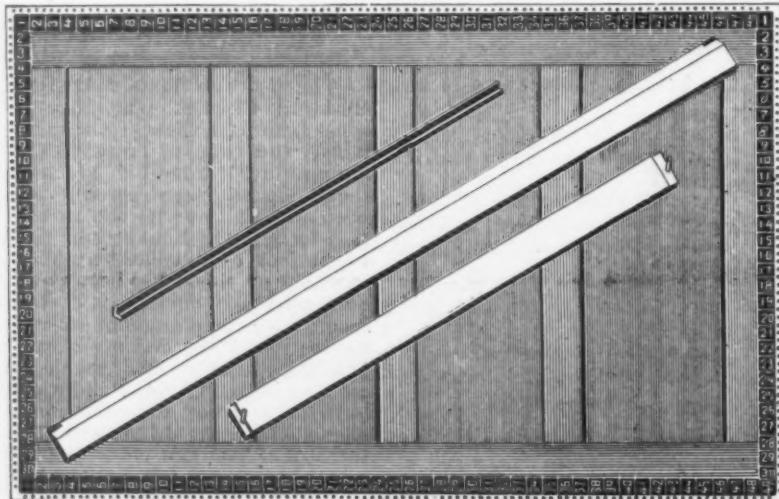


The Chicago Autograph Time Recorder.

man himself and inspected by the employee at the time it was made. The autograph recorder is peculiarly adapted to the use of the higher grades of employees, who as a rule entertain a serious objection to being known by a number but do not object to signing a time record sheet. It also affords a perfect means of keeping the time on piece and job work closely. Every employer well knows how unreliable are the daily reports made out by workmen at the end of the day, the employee in almost every instance estimating the amount of time he worked on the various jobs through the day. While heretofore the daily report system has been recognized as among the best its inaccuracy is admitted, and any system by which the employer can know to an absolute certainty the exact time put in on the different jobs is an advantage. An illustration of this recorder is herewith presented, an arrow pointing to the place where the record is shown. When the employee registers, by signing his name on the record sheet, the wrist support upon which he rests his hand when writing is thereby lowered, causing the machine to automatically print the time opposite his name in full view. This machine is said to be very carefully constructed in all its details, all the principal wearing points being made of tool steel carefully hardened, and the machine as a whole is constructed with a great degree of nicety. The company are willing to allow any responsible firms contemplating the adoption of a recorder ample time to demonstrate in their own works the superiority of these machines, which are, upon acceptance, fully guaranteed.

Lightning Paneled Glass Board.

Lightning Novelty Company, Des Moines, Iowa, are manufacturing the Lightning paneled glass board, here illustrated. Its capacity is 30 x 48 inches. The numbers

*Lightning Paneled Glass Board.*

are illuminated, so the board can be used even in dark places in a store. The makers refer to the construction as such that the board will neither warp, swell nor shrink, retaining its original shape permanently, the board being warranted unconditionally. This device can be retailed at \$4.50. In the engraving will be seen the straight edges, with pins at both ends to fit corresponding holes in the board, so as to keep the edge rigid and true in cutting.

The New Smalley Silo Cutter.

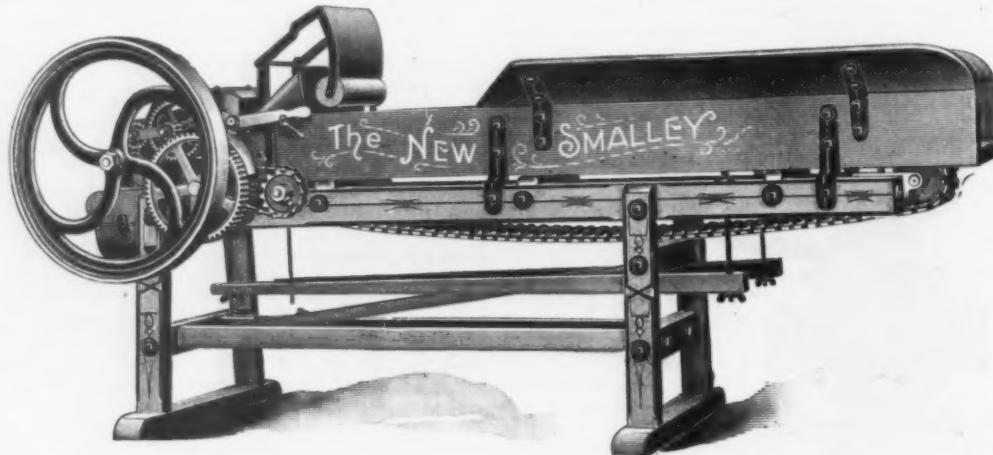
An addition to desirable farm machinery is the New Smalley silo cutter, built by the Smalley Mfg. Company, Manitowoc, Wis. It is herewith illustrated. The machine has a number of special features, as follows: An automatic self feed table, which increases the capacity of the machine and decreases the labor of feeding; a patent safety feed roller, which does the work of at least one man in distributing the fodder before it enters the regular feeding rolls of the machine, and obviates the necessity of the operator getting his hands to the feed rollers, thus guarding against accidents of this character; a patent safety fly wheel and pulley, so constructed that when the cutter knives strike an obstruction the fly wheel and pulley are loosened on the shaft and the machine is not damaged; a patent safety lever for controlling the feed rollers, whereby they can be quickly disconnected from the driv-

it is said, will last for years. It can be applied by any workman, the elasticity of the rubber being utilized to hold the protector in place over the screw. It is made in sizes to fit varying set screws. This device has been suggested by the numerous accidents resulting in expensive

*Canfield Set Screw Protector.*

litigation caused by exposed set screws and is said by the makers to have been highly commended by the liability companies and factory inspectors.

The Stephenson Hardware Company, Oxford, Ohio, have been incorporated under the laws of the State of

*The New Smalley Silo Cutter.*

ing shaft and instantly stopped. The machine is built in four sizes, the largest size requiring a 12 to 16 horse-power engine to operate it.

P. E. and H. A. Hallum have purchased the Hardware business of C. J. Monson, Abercrombie, N. Dak. They will continue under the style of Hallum Bros.

Canfield Set Screw Protector.

H. O. Canfield, Bridgeport, Conn., is manufacturing the Canfield set screw protector, here illustrated. The protector is made of a specially prepared rubber, which,

Ohio, with the following officers: D. W. Stephenson, president; Llewellyn Bonham, vice-president; R. W. McFarland, secretary and treasurer. Extensive changes and improvements in the storeroom and fixtures will be commenced at once, the intention being to bring the establishment right up to date in the matter of arrangement and facilities.

Current Hardware Prices.

REVISED JULY 18, 1899.

General Goods.—In the following quotations General Goods—that is, those which are made by more than one manufacturer are printed in *Italics*, and the prices named represent those current in the market as obtainable by the fair retail Hardware trade, whether from manufacturers or jobbers. They apply to such quantities of goods as are usually purchased by retail merchants. Very small orders and broken packages often command higher prices, while lower prices are frequently given to larger buyers.

Special Goods.—Quotations printed in the ordinary type (Roman) relate to goods of particular manufacturers, and are in many cases their regular prices to the small trade, lower prices being frequently quoted to the fair retail trade, both by the manufacturers and the jobbers.

Adjusters Blind—

Domestic, $\frac{1}{2}$ doz. \$3.00... 33 $\frac{1}{2}$ @ \$3.14 & 10%
North's—See Fasteners, Blind.

Window Stop—

Ives' Patent..... 25 & 5%
Taplin's Perfection..... 55%

Ammunition—See Caps, Cartridges, Shells, &c.

Anvils—American—

Apple Anvils..... 20 & 75¢
Hay-Budden, Wrought..... 34 & 54¢
Horseshoe brand, Wrought..... 94 & 94¢
Samson..... 20 & 75¢
Trenton, Wrought..... 20 & 84 & 94¢

Imported—

Armitage's Mouse Hole..... 84 & 94¢
Peter Wright's..... 94 & 94¢

Anvil, Vise and Drill—

Millers Falls Co., \$18.00..... 20%

Apple Parers—See Parers, Apple, &c.

Augers and Bits—

Common Double Spur..... 70 & 10 @ 75¢
Boring Machine Augers..... 70 & 10 @ 75¢
Car Bits, 12-in. twist..... 80 & 10 & 10 @ 70%

Jennings' Pattern:

Auger Bits..... 60 & 10 & 10 @ 70%
Ford's Auger and Car Bits..... 40 & 10 @ 40 & 10%

Forster Pat. Auger Bits..... 25¢

C. E. Jennings & Co.: No. 10 ext. lip, R. Jennings' Hat..... 40 & 40 & 10%

No. 30, R. Jennings' List..... 50 & 10 @ 60%

Russell Jennings'..... 25 & 10 & 10 @ 5%

L'Hommedieu Car Bits 15 & 10 @ 15 & 10 @ 5%

Pugh's Black..... 20%

Pugh's Jennings' Pattern..... 35¢

Snell's Auger Bits..... 70%

Snell's Bell Hangers' Bits..... 5%

Snell's Car Bits..... 60 & 10 & 10 @ 70%

Wright's Jennings' Bits (R. Jennings' list)..... 50%

Bit Stock Drills—

Standard List..... 60 & 10 & 10 @ 70 & 5%

Expansive Bits—

Clark's small, \$18; large, \$20..... 50 & 10%

Lavigne's Clark's Pattern, No. 1, $\frac{1}{2}$ doz. \$28; No. 2, \$18..... 50 & 10%

Steer's No. 1, \$26; No. 2, \$18, 40 & 40 & 5%

Swan's..... 40 & 40 & 10%

Gimlet Bits—

Common Double Cut, gro. \$2.75 @ \$3.25

German Pattern..... gro. \$5.00 @ \$5.50

Double Cut, makers' lists..... 50 & 5 @ 50 & 10%

Hollow Augers—

Bonney's Adjustable, $\frac{1}{2}$ doz. \$18.00

Douglas..... 33 $\frac{1}{2}$ @ \$3.5 & 10%

Stearns' Common, No. 6..... 10%

Stearns', all other numbers..... 3 & 10%

Ship Augers and Bits—

Forster's..... 40 & 10 @ 40 & 10 @ 5%

Snell's..... 40 @ 40 & 10%

L'Hommedieu's..... 15 & 10 @ 15 & 10 @ 5%

Watrous'..... 40 @ 40 & 10%

Awl Hafts, See Hafts, Awl.

Awls—

Brad Awls:

Handled..... gro. \$2.75 @ \$3.00

Unhandled, Shouldered gro. 65 @ 70¢

Unhandled, Patent..... gro. 70 @ 75¢

Peg Awls:

Unhandled, Patent..... gro. 33 @ 35¢

Unhandled, Shouldered, gro. 65 @ 70¢

Scratch Awls:

Handled, Common, gro. \$3.00 @ \$3.75

Handled, Socket, gro. \$11.00 @ \$12.00

Awl and Tool Sets—See Sets, Awl and Tool.

Axes—

First Quality, best brands, \$5.25 @ 5.50

First Quality, other brands, \$4.50 @ 4.75

Jobbers' Special Brands:

Good Quality..... \$4.25 @ 4.50

Best Quality..... \$5.00 @ 5.25

Cheap Handled Axes..... 4.75 @ 5.25

Good Handled Axes..... \$5.00 @ 5.25

Beveled, add 25¢ doz

Axle Grease—See Grease, Axle.

Axes—

Concord, loose collar..... 54¢ 5 c

Concord, solid collar..... 54¢ 5 c

No. 1 Common..... 4 c 5 34¢

No. 14 Com. New Style..... 4 $\frac{1}{2}$ c 4 $\frac{1}{2}$ c

No. 2, Solid Collar..... 44¢ 4 $\frac{1}{2}$ c

Nos. 7, 8, 11 to 14..... 60¢ 62¢

Nos. 7, 8, 11 to 14, 100 sets, extra 10%

Nos. 15 to 18..... 60¢

Nos. 19 to 22..... 70¢

5¢ each

Iron. Steel.

Lane's Cycle Hanger..... 89 $\frac{1}{2}$ & 25¢

John S. Leng's Son's 1890 list:

Bails..... 50%

Chain..... 50%

Parts..... 50%

Spokes..... 50 & 10%

Bits—

Auger, Gimlet, Bit Stock Drills, &c.—

See Augers and Bits.

Balances—

Sash—

Caldwell low list..... 20%

Pullman's..... 65%

Vanderbilt's..... 30%

Spring—

Spring Balances..... 50 @ 50 & 5%

Chat'lona's Light S. Balances..... 50%

Chat'lona Circular Balances..... 40 & 10%

Chat'lona Large D's..... 55%

Barb Wire—See Wire, Barb.

Bars—

Crow—

Steel Crowbars, 10 to 40 lb., per lb.....

5¢ to 5¢ 1/2 c

Beams, Scale—

Scale Beams, List Jan. 12, '98—

40 & 10 @ 50%

Chattillon's No. 1..... 30%

Chattillon's No. 2..... 40%

Beaters—

Egg—

Dover (Standard Co.), No. 10, 2 gro.

\$6.45; No. 5, 45¢; No. 15, \$14.00

Dover (Tap. in Mfg. Co.), No. 50, 2 gro.

\$6.25; 100, \$1.25; 102, \$1.00;

No. 150, $\frac{1}{2}$ doz. \$1.50; No. 152, \$2.00;

Lyon's, Standard list..... 5¢ to \$1.75

Wonder (S. S. & Co.)..... 25¢

Bellows—

Blacksmith—

Standard List..... 70 @ 70 & 5%

Inch..... 30 32 34 36 38 40

Each, \$4.25 4.50 5.00 5.75 6.00 7.75

Extra Length:

Each, \$4.75 5.25 5.75 6.00 7.40 8.75

Net Price:

Molders—

Inch..... 9 10 11 12 13 14 15

Doz..... \$8.75 7.25 8.50 9.50 15.00 14.50

Hand—

Inch..... 6 7 8 9 10 11

Doz..... \$3.75 4.25 4.50 5.00 5.50 5.75 6.75

Door—

Gong, Yankee..... 60¢ to 10¢

No. 6, R. & E. Mfg. Co.'s..... 50¢ to 10¢

Lever and Pull, Sargent's..... 45 & 10 @ 45 & 10 & 10¢

Hand—

Hand Bells, Polished..... 65 & 10 @ 70¢

White Metal..... 65 & 10 @ 70¢

Nickel Plated..... 50 & 5 @ 50 & 10 & 5%

Swiss..... 65 & 10 & 10¢

Miscellaneous—

Farm Bells..... lb. 2 @ 2 $\frac{1}{2}$ c

Steel Alloy Church and School..... 50 & 10 @ 60¢

Beltting—

Rubber—

Common Standard..... 70 & 10 @ 75¢

Standard..... 60 & 10 @ 70¢

Extra..... 60 & 10 @ 70¢

High Grade..... 60 & 10 @ 70¢

Leather—

Extra Heavy, Short Lap..... 50 & 10 @ 70¢

Regular Short Lap..... 60 @ 60 & 5%

Standard..... 60 & 10 @ 60 & 10 & 5%

Light Standard..... 70 & 10¢

Bench Stops—See Stops, Bench

Benders and Upsetters, Tire—

Brettell Tire Upsetters, \$15..... 50¢

Green River Tire Benders and Upsetters..... 20¢

Stoddard's Lightning Tire Upsetters..... 40¢ to 50¢

Borers, Tap—

Borers Tap, Ring, with Handle:

Inch..... 1 $\frac{1}{4}$ 1 $\frac{1}{2}$ 1 $\frac{1}{4}$ 2

Per doz.... \$2.50 4.50 5.00 6.50

Inch..... 2 $\frac{1}{2}$ 3 $\frac{1}{2}$ 4 $\frac{1}{2}$ 5 $\frac{1}{2}$

Per Doz..... \$7.50 10.50

Cut Prices.—In the present condition of the market, while many advanced prices are announced by the manufacturers, lower prices are often made by the wholesale trade who have stocks on hand purchased at former quotations.

Names of Manufacturers.—For the names and addresses of manufacturers see the advertising columns and also THE IRON AGE INDEX SUPPLEMENT (April 6, 1899), which gives a classified list of the products of our advertisers and thus serves as a DIRECTORY of the Iron, Hardware and Machinery trades.

Standard Lists.—A new edition of "Standard Hardware Lists" has been issued and contains the list prices of many leading goods.

Additions and Corrections.—The trade are requested to suggest any improvements with a view to rendering these quotations as correct and as useful as possible to Retail Hardware Merchants.

Bicycle Goods—

Lane's Cycle Hanger..... 89 $\frac{1}{2}$ & 25¢

John S. Leng's Son's 1890 list:

Bails..... 50%

Chain..... 50%

Parts..... 50%

Spokes..... 50 & 10%

Braces—

NOTE.—Most Braces are sold at net prices.

Common Ball, American..... \$1.10 @ 1 20

Barber's..... 60 @ 60 & 10%

Fray's Genuine Spofford's..... 50 & 10 & 5%

Fray's No. 70 to 120, 81 to 123, 207 to 241..... 50 & 10 & 5%

P. S. & W. Co., Peck's Patent..... 60 & 10 & 5 @ 60 & 10 & 10 & 10%

Brackets—

Cast Iron, plain..... 75 @ 75 & 10%

Wrought Steel..... 70 & 10 @ 75%

Bradley's Wire Shelf..... 75 & 10 & 80%

Primers—						
Berdan Primers, \$1.00	25					
B. L. Caps (Sturtevant Shells)	25					
\$1.00	25					
All other primers...	\$1.00@\$1.10					
Carpet Stretchers—						
See Stretchers, Carpet.						
Cartridges—						
B. B. Caps, Con., Ball Swgd.	\$1.90					
B. B. Caps, Round Ball...	\$1.12@1.18					
Blank Cartridges:						
32 C. F., \$6.50	25					
38 C. F., \$7.00	25					
22 cal. Rim, \$1.50	25					
32 cal. Rim, \$2.75	25					
Central Fire	15d5@25					
Pistol and Rifle	25d5@25					
Primed S'ells and Bullets	15d5@25					
Rim Fire Sporting	50d2					
Rim Fire, Military	15d5@25					
Casters—						
Bed	70d5@70d10					
Plate	60@80d10					
Plate, part Brass	60					
Philadelphia	70d5@70d10					
Martin's Patent (Phoenix)	60@40d5					
Payson's Anti-friction Furniture	70d10@55					
Payson's Anti-friction Truck	60@10&55					
Standard Ball Bearing	50					
Tucker's Patent, low list	50@50&55					
Cattle Leaders—						
See Leaders, Cattle.						
Chain—						
American Coil, Cask Lots:						
3-16	5-16	36	7-16	36	9-16	
\$7.75	6.00	4.25	4.25	10	4.00	3.90
4%	4%	3%	1	inch.		
\$3.80	3.75	3.65	3.65			
Less than Cask lots add 1-10c. per lb.						
German Coil, list July 24, '97						
60@10@80d10d10						
German Haller Chain, list July 24, '97						
60@10@80d10d10						
Trace, Wagon and Fancy Chaine, list April, '98						
60@80d10						
Jack Chain, list July 10, '98:						
Iron						
70@70d10						
Brass						
50d10@50						
Gal. Pump Chain						
lb. 4½@4½c						
Breast, Hitching and Rein Chains						
Covert Sud. Works						
70						
Covert Mfg. Co.:						
Breast	45&25					
Halter	45&25					
Heel	45&25					
Rein	45&25					
Stallion	45&25					
Oneida Community						
Niagara and Eureka Welders Co.	55d65@55					
and Halt-r's	55d65@55					
Niagara and Eureka Welders C. W.						
Ties	55&70@60					
American Catt. and Slaters	55d5@60					
American Cow Ties	50@50@10					
Chalk—(From Jobbers)						
Carpenters', Blue	gro. 50@55c					
Carpenters', Red	gro. 45@1.75					
Carpenters', White	gro. 40@42c					
See also Crayons.						
Chalk Lines—See Lines.						
Checks, Door—						
Bardsley's	40%					
Columbus	50&10%					
Eclipse	60@80d10%					
Chisels—						
Socket Framing and Firmer						
Standard List	75d5@75d10					
Buck Bros.	30%					
Charles Buck	30%					
Swan'	75d75@58d2%					
L. & L. J. White	30@30d5					
Tanged—						
Tanged Firmer	40d10@50%					
Buck Bros.	30%					
Charles Buck	30%					
L. & L. J. White, Tanged	30d5					
Cold—						
Cold Chisels, good quality lb. 14@16c						
Cold Chisels, fair quality						
lb. 12c						
Cold Chisels, ordinary						
lb. 7@74c						
Chucks—						
Beach Pat., each \$8.00	20%					
Morse's Adjustable, each \$7.00	25%					
Skinner Patent Chucks:						
Combination Lathe Chucks	40%					
Drill Chucks	30%					
Independent Lathe Chucks	40%					
Improved Planer Chucks	20%					
Universal Lathe Checks	40%					
Union Mfg. Co.:						
Combination	40%					
Czr. Drill	30%					
Geared Serr.	35%					
Independent	40%					
Union Drill	40%					
Universal	40%					
Face Plate Jaws	35%					
Clamps—						
Adjustable, Hammers	20@20&5					
Adjustable, Stearns'	30@30@10%					
Cabinet, Sargeon	45@10@50@10%					
Carriage Makers', P. S. & W. Co.	40@10%					
Carriage Makers', Sargeon's	50d10@50@10&5					
Beav. Parallel	33d5					
R. I. Tool Co.'s Wrought Iron	25%					
Saw Clamps, see Fises, Saw Fliers'						
Stearns Malleable, with Wrought Iron						
Screw	75d75@55					
Stearns Steel	25@10%					
U. S. Lock Co.	40d10@40&10&5					
Cleavers, Butchers'						
Foster Bros. Flat Ida's, 30c; Rd. H. I's, 40c						
New Haven Edge Tool Co.'s	40%					
Nichols Bros. Flat hdl., 30c; Rd. hdl., 40c						
Fayette R. Plumb.	33d5@33d5@10%					
F. S. & W. Co.	33d5@33d5@10%					
L. & J. White	25%					
Cleavers, Walk—						
Star Socket, All Steel	70d. \$6.00 net					
Star Shank, All Steel	70d. \$3.75 net					
Clips, Axe—						
Eagle and Superior	34 and 5-16					
inch	70d10@75%					
Norway, 34 and 5-16 inch	70@70d5					
Cloth and Netting, Wire						
—See Wire, &c.						
Cocks, Brass—						
Hardware list (Globe, Kerosene, Lever Bibbs, Racking, &c.)	70@70d5					
Coffee Mills—See Mills, Coffee.						
Collars, Dog—						
Brass, Pope & Stevens' list	40%					
Embossed, Gilt, Pope & Stevens' list	80@10%					
Leather, Pope & Stevens' list	40%					
Compasses, Dividers, &c.						
Ordinary Goods	70d10@75%					
Bemis & Call Hdw. & Tool Co.:						
Dividers	65%					
Callipers, Call's Patent Inside	55%					
Callipers, Double	70%					
Callipers, Inside or Outside	70%					
Callipers, Wing	60%					
Compasses	50&55					
J. Stevens A. & T. Co.	25d10%					
Coolers, Water—						
S. & Co.: 2-gal. \$2.70; 8-gal. \$3.20; 1-gal. \$3.60; 6-gal. \$4.75; 8-gal. \$7.20; 11-gal. \$11; 14-gal. \$14 each	60@60					
Coopers' Tools—						
See Tools, Coopers'.						
Cord— Sash—						
Braided, Drab	lb. 21@25c					
Braided, White, lb.	15@20c					
Cable Laid Italian	lb. A, 18c; B, 16c					
Common India	lb. 8½@9c					
Cotton Sash Cord, Twisted	10@15c					
Patent Russia	lb. 18					
Cable Laid Russia	lb. 15½@14c					
India Hemp, Braided	lb. 14@15c					
India Hemp	lb. 9@10c					
Patent India	lb. 10 c					
Pearl Braided, cotton	lb. 16c					
Massachusetts, White	lb. 17c					
Eddystone Braided Cotton	lb. 18c					
Harmony Cable Laid Italian	lb. 18c					
Oswego Mills:						
Crown, Solid Braided White	lb. 18c					
Braided, Giant, White	lb. 16c					
Peerless:						
Cable Laid Italian	16c					
Cable Laid Russian	13c					
Cable Laid India	11c					
Braided India	18c					
Samson:						
Braided, Drab Cotton	lb. 28@35c					
Braided, Italian Hemp	lb. 31@38c					
Braided, Linen	lb. 32@35c					
Braided, White Cotton	lb. 27@30c					
Silver Lake:						
A quality, Drab, 40c	15&10%					
A quality, White, 35c	15&10%					
B quality, Drab, 35c	15&10%					
B quality, White, 30c	15&10%					
Italian Hemp, 40c	15&10%					
Linen, 57½c	15&10%					
Wire, Picture—						
Braided or Twisted						
See Trade Report.						
Corn Knives and Cutters—						
—See Knives, Corn.						
Crackers, Nut—						
Acme, Japanned, 9 gr.	40%					
Acme, Nickel Plated, 9 gr.	30%					
Turner & Seymour Mfg. Co.	50%					
Cradles—						
Grain	55%					
Crayons—						
White Round Crayons, gross	5@6c					
Cases, 100 gro.	\$1.50@\$50					
at factory						
D. M. Steward Mfg. Co.:						
Metal Workers', 9 gr.	\$2.50					
Railroad, W. gr.	\$2.00					
Rolling Mill, W. gr.	\$2.50					
Soapstone Pencils, 9 gr.	\$1.50					
20@25%						
See also Chalk.						
Creamery Pails—See Pails, Creamery.						
Crooks, Shepherds'						
Fort Madison, Heavy	70d.					
Fort Madison, Light	70d.					
See also Chalk.						
Crow Bars—See Bars, Crow.						
Cultivators—						
Victor Garden	70d.					
Curry Combs—						
See Combs, Curry.						
Cutters— Meat—						
American	30c					
Nos. 1, 2, 3, 4	B 5					
Each	\$5 \$7 \$10 \$25 \$50 \$80					
C. m. c. u. c. t.:						
Nos. 0, 1, 2, 3, 4, 5	10 12 14 16 18 20					
ach.	\$1.75 2.25 3.00 3.80 5.50					
Enterprise	25@25@7½c					
Nos. 5, 10, 12, 22, 32						
Each	\$2 \$3 \$2.50 \$4 \$6					
Dixon's, 9 gr.	33d5					
Nos. 1, 2, 3, 4	5					
Each	\$14.00 \$17.00 \$19.00 \$30.00					
Hale's, 9 gr.	70d.					
Nos. 11, 12, 13						
Each	\$27.00 \$33.00 \$45.00					
Home No. 1, 9 gr.	\$26.00					
Little Giant	50&10%					
Nos. 305, 310, 312, 318, 320, 322						
Each	\$35.00 \$48.00 \$44.00 \$71.00 \$68.00					
Clamps—						
Adjustable, Hammers	20@20&5					
Adjustable, Stearns'	30@30@10%					
Cabinet, Sargeon	45@10@50@10%					
Carriage Makers', P. S. & W. Co.	40@10%					
Carriage Makers', Sargeon's	50d10@50@10&5					
Beav. Parallel	33d5					
R. I. Tool Co.'s Wrought Iron	25%					
Saw Clamps, see Fises, Saw Fliers'						
Stearns Malleable, with Wrought Iron						
Screw	75d75@55					
Stearns Steel	25@10%					
U. S. Lock Co.	40d10@40&10&5					
Cleavers, Butchers'						
Foster Bros. Flat Ida's, 30c; Rd. H. I's, 40c						
New Haven Edge Tool Co.'s	40%					
Nichols Bros. Flat hdl., 30c; Rd. hdl., 40c						
Fayette R. Plumb.	33d5@33d5@10%					
F. S. & W. Co.	33d5@33d5@10%					
L. & J. White	25%					
Cleavers, Walk—						
Star Socket, All Steel	70d. \$6.00 net					
Star Shank, All Steel	70d. \$3.75 net					
Clips, Axe—						
Eagle and Superior	34 and 5-16					
inch	70d10@75%					
Cloth and Netting, Wire						
—See Wire, &c.						
Cocks, Brass—						
Hardware list (Globe, Kerosene, Lever Bibbs, Racking, &c.)	70@70d5					
Coffee Mills—See Mills, Coffee.						
Collars, Dog—						
Brass, Pope & Stevens' list	40%					
Embossed, Gilt, Pope & Stevens' list	80@10%					
Leather, Pope & Stevens' list	40%					
Compasses, Dividers, &c.						
Ordinary Goods	70d10@75%					
Bemis & Call Hdw. & Tool Co.:						
Dividers	65%					
Callipers, Call's Patent Inside	55%					
Callipers, Double	70%					
Callipers, Inside or Outside	70%					
Callipers, Wing	60%					
Compasses	50&55					
J. Stevens A. & T. Co.	25d10%					
Coolers, Water—						
Brass, Pope & Stevens' list	40%					
Embossed, Gilt, Pope & Stevens' list	80@10%					
Leather, Pope & Stevens' list	40%					
Compasses, Dividers, &c.						
Ordinary Goods	70d10@75%					
Bemis & Call Hdw. & Tool Co.:						
Dividers	65%					
Callipers, Call's Patent Inside	55%					
Callipers, Double	70%					
Callipers, Inside or Outside	70%					
Callipers, Wing	60%					
Compasses	50&55					
J. Stevens A. & T. Co.	25d10%					
Cord— Sash—						
Braided, Drab	lb. 21@25c					
Braided, White, lb.	15@20c					
Cable Laid Italian	lb. A, 18c; B, 16c					
Common India	lb. 8½@9c					
Cotton Sash Cord, Twisted	10@15c					
Patent Russia	lb. 18					
Cable Laid Russia	lb. 15½@14c					
India Hemp, Braided	lb. 14@15c					
India Hemp	lb. 9@10c					
Patent India	lb. 10 c					
Pearl Braided, cotton	lb. 16c					
Massachusetts, White	lb. 17c					
Eddystone Braided Cotton	lb. 18c					
Harmony Cable Laid Italian	lb. 18c					
Oswego Mills:						
Crown, Solid Braided White	lb. 18c					
Braided, Giant, White	lb. 16c					
Peerless:						
Cable Laid Italian	16c					
Cable Laid Russian	13c					
Cable Laid India	11c					
Braided India	18c					
Samson:						
Braided, Drab Cotton	lb. 28@35c					
Braided, Italian Hemp	lb. 31@38c					
Braided, Linen	lb. 32@35c					
Braided, White Cotton	lb. 27@30c					
Silver Lake:						
A quality, Drab, 40c	15&10%					
A quality, White, 35c	15&10%					
B quality, Drab, 35c	15&10%					
B quality, White, 30c	15&10%					
Italian Hemp, 40c	15&10%					
Linen, 57½c	15&10%					
Patent India	lb. 10 c					
Pearl Braided, cotton	lb. 16c					
Massachusetts, White	lb. 17c					
Eddystone Braided Cotton	lb. 18c					
Harmony Cable Laid Italian	lb. 18c					
Oswego Mills:						
Crown, Solid Braided White	lb. 18c					
Braided, Giant, White	lb. 16c					
Peerless:						
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B quality, Drab, 35c	15&10%					
B quality, White, 30c	15&10%					
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Linen, 57½c	15&10%					
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Massachusetts, White	lb. 17c					
Eddystone Braided Cotton	lb. 18c					
Harmony Cable Laid Italian	lb. 18c					
Oswego Mills:						
Crown, Solid Braided White	lb. 18c					
Braided, Giant, White	lb. 16c					
Peerless:						
Cable Laid Italian	16c					
Cable Laid Russian	13c					
Cable Laid India	11c					
Braided India	18c					
Samson:						
Braided, Drab Cotton	lb. 2					

Climlets—

Nail, Metal, Assorted, gro. \$1.50@2.00
Spike, Metal, Assorted gro. \$3.25@3.75
Nail, Wood Handled, Assorted,
gro. \$4.00@4.50
Spike, Wood Handled, Assorted,
gro. \$5.00@5.25

Class, American Window

List Jan. 1, 1898.

Small lots from store:
Eastern.....80d@20%
Western.....80d@20@80d@5%

From Factory, with Frt. Allowance:
Carloads.....80d@20%
1000 boxes or more, Gulf Ports,
80d@10%
3000 boxes or more.....85d@85d@2%
5000 boxes or more.....85d@5%

Glue-Liquid, Fish—

List A, Bottles or Cans, with Brush.
57d@50%
List B, Cans (1/2 pts., pts., qts.).....
33d@48%
List C, Cans (1/2 gal., gal.).....25d@45%

Glue Pots—See Pots, Glue.**Grease, Axle—**

Allerton's Axle:
1 lb. Tins, 1/2 gr.9.00
8 lb. Tin Pails, 1/2 doz. \$2.00; 5 lb. \$3.00;
10 lb. \$6.00.
25 lb. wood pails.....1/2 doz. \$12.00
Dixon's Everlasting, 10 lb. pails, ea. \$5.00
Dixon's Everlasting, in bxs. 1/2 doz. 1 lb.
\$1.20; 2 lb. \$2.00
Lower grades, special brands,
1/2 gr. \$5.00@6.50

Grindstone Fixtures—

See Fixtures, Grindstone.

Gun Powder—See Powder.**Hack Saws—See Saws.****Hafts, Awl—**

Peg Patent, Leather Top....gro. \$1.90
Peg Patent, Plain Top....gro. \$3.45
Sewing, Brass Ferrule....gro. \$1.50
Saddlers', Brass Ferrule....gro. \$1.35
Peg, Common....gro. \$1.25
Brad, Common....gro. \$1.35

Halters and Ties—

Covert Mfg. Co., Web and Rope, 45d@2%
Covert's Saddlery Works', 96 list.....70%

Hammers—

Handled Hammers—
Heller's Machinists'.....40@40d@5%
Magnetic Tool, Nos. 1, 2, 3, \$1.25, \$1.50,
\$1.75.....40d@10%
Peg, Stow & Wilcox.....40d@40d@5%
Fayette it. Plumb:
Artisans' Choice, A. E. Nall, 40@12d@5%
Engineers' and B. S. Hand.....60%
Machinists' Hammers.....60%
A. E. & A. E. Bell Face Nail, 40d@12d@5%
Other Nail Hammers.....50%
Sargent's C. S. New List.....40d@50%

Heavy Hammers and Sledges—

3 lb. and under...lb. 45c) 75d@10d@5%
2 to 5 lb.....lb. 30c) 80d@5%
Over 5 lb.....lb. 30c) 80d@5%
Note.—Lower net prices sometimes
made by jobbers.
Wilkinson's Smiths'.....94c@10c lb.

Handcuffs and Leg Irons—

See Police Goods.

Handles—**Agricultural Tool Handles—**

Hoe, Rake, Fork, &c., 80d@10@60d@10d@5%

Shovel, &c., Wood D Handle...80d@10%

Cross-Cut Saw Handles—

Atkins'.....40%

Champion.....45@45d@10%

Distant'.....50%

Ely's Perfection.....1/2 doz. \$3.00

Mechanics' Tool Handles—

Auger, assorted....gro. \$2.25@2.50

Auger, large....gro. \$2.75@3.00

Brad Awl.....gro. \$1.40@1.60

Chisel Handles:

Apple Firmer, gro. ass'd. \$2.25@

\$2.50; large, \$2.75@3.00.

Hickory Firmer, gro. ass'd. \$2.25@

\$2.50; large, \$2.50@2.75.

Screw, gro. ass'd. Firmer, \$1.50@

\$1.60; Framing, \$2.50@2.75.

File, assorted....gro. \$1.00@1.15

Hammer, Hatchet, Axe, &c., 50d@10%

Hoe, Rake and Fork.....60d@10@60d@10d@5%

Shovel and Spade, Wood D Handle.....60d@10%

Hand Saw, Varnished, doz. 75@80c

Not Varnished.....55@80c

Plane Handles:

Jack, doz. 25@25c; Jack Bolted,

55@80c

Fore, doz. 55@38c; Fore, Bolted,

70@75c

Hangers—

Barn Door, New Pattern, Round

Groove, Regular:

Inch.....3 4 5 6 8

Doz.....\$1.28 1.68 2.16 2.64 3.30

Barn Door, New England Pattern,

Check Back, Round Groove, Reg-

ular:

Inch.....3 4 5 6 8

Doz.....\$1.86 2.74 4.84 6.18

Bigelow & Dowse Co.:
Paragon, No. 1, \$3.50; No. 2, \$4.50;
No. 3, \$5.50 1/2 doz.
Chicago Spring Butt Co.:
Friction.....85@35@10%
Oscillating.....85@35@10%
Big Twin.....85@35@10%
Chisholm & Moore Mfg. Co.:
Advance.....60@10%
Cleveland.....60@10%
Baggage Car Door.....50%
Elevator.....40%
Railroad.....55%

Lane Bros.:
Parlor, Standard.....40@10%
Barn Door, Standard.....60@10%
Covered.....60@10%
Cycle, 1/2 doz. \$12.00.....83d@5%
No. 50.....60@10%
Parlor Door, New Model.....40@5%

Lawrence Bros.:
Crown.....60@10%
New York.....60@10@60@10%
Sterling.....60@10%
McKinney Mfg. Co.:
No. 2, Standard, \$18.....60@10%
No. 1, Standard, \$13.....60@10%
E. C. Stearns & Co.:
Davis Parlor Door.....50@50d@5%
Gem Parlor Sliding Door.....50@10%
Challenge.....50@50d@5%
Steel Single Track Parlor, \$6.....50%
Royal Parlor Door.....50%
Warner's Pat.20@10@10%
Warner's Imp'd Single.....40@10%
Stowell Mfg. and Foundry Co.:
Badger.....60@10%
Baggage Car Door.....83d@5%
Climax Anti-Friction.....55@5%
Elevator.....40%
Interstate.....60@15%
Magic.....50@10%
Matchless.....80@10%
Nansen.....60@10%
Parlor Door.....50@10%
Railroad.....55@5%
Street Car Door.....50@10%
Steel, Nos. 300, 400, 500.....45@15%
Wild West.....50@10%
Zenith for Wood Track.....55@5%

Taylor & Boggis Foundry Co.:
Kidder's.....50@50d@10%
Van Wagoner & Williams Hdw Co.:
American Trackless.....33d@10%
Wilcox Mfg. Co.:
Aurora Steel Endless.....60%
Bike Roller Bearing.....60@10@10%
Bike Steel Endless.....60@10@10%
Bike Wheel Bearing.....60@10@10%
Cycle Ball Bearing.....50@10%
Dye Steel.....60@10@10%
Economical Single Track, 50@10@2%
L. T. Roller Bearing.....70%
New Era.....50@10%
New Richards.....60%
O. K. Roller Bearing.....70%
Prindle Improved.....60@10%
Richards' Improved.....60@10%
Richards' Single Track.....50@10%
Wilcox Dwarf Roller Bearing.....40@10%
Wilcox-Eves.....60@10%
Wilcox Tandem Roller Bearing.....60@10%
Wilcox Trolley Ball Bearing.....40@10%
Wilcox Trolley Roller Bearing, 50%
Fire.....40@10%
Wood Track.....60%

Harness Menders—See Menders.

Harness Snaps—See Snaps.

Haps—
McKinney's Perfect Hasp, 1/2 doz. \$1.10
40@10%

Wrought Haps, Staples, &c.—See
Wrought Goods.

Hatches—
Best Brands.....50d@12d@45@50d@5%
Cheaper Brands.....50d@10@80d@5%
Note.—Net prices often made.

Hay and Straw Knives—
See Knives.

Hinges—
Blind Hinges—

Lull & Porter:
No. 1 1/4 2 3/4
Doz. pair. \$0.47 1/2 40 35

1868 Old Pattern:
No. 1 3 5 7
Doz. pair. \$0.55 1.00 2.00

Parker: 75@10@75@10@5%
North's Automatic Blind Fixtures, No.
2, for Wood, \$0.05; No. 3, for Brick
\$11.50.....10%
Reading's Gravity.....75@10%
Sargent's, Nos. 1, 3, 5, 11, 13, 75@75@10%

Wrightson's H'dware Co.:
Acme, Lull & Porter.....80@10%
Buffalo Gravity Locking, Nos. 1, 3
and 5.....80@10@5%

Champion Gravity Locking, No. 75@10@10%
Old Pat'n, Nos. 1, 3 & 5.....80@10%
Tip Pattern, Nos. 1, 3 and 5.....80@10@5%

Double Locking, Nos. 20 and 25.....75%
Empire, Nos. 101 and 103.....80%
Niagara Gravity Locking, Nos. 1, 3
and 5.....80@10%
Noseless, Nos. 50, 60, 65 and 55.....80%
O. S. Lull & Porter.....80@10@5%

Pioneer, Nos. 060, 45 and 54.....75@5%

Steamboat Gravity Locking, No. 10.....80@10@5%

Stanley's Steel Gravity Blind Hinges,
1/2 doz. sets \$1.30.....40@10%

Gate Hinges—
Clark's or Shepard's—Doz. sets:

No. 1 2 3
Hinges with Latches \$1.40 1.75 2.25
Hinges only.....0.92 1.40 2.40
Latches only.....0.46 1.46 2.80

New England:
With Latch.....doz. \$1.45@1.50
Without Latch.....doz. \$1.30@1.35

Reversible Self-Closing:
With Latch.....doz. \$1.70@1.75
Without Latch.....doz. \$1.30@1.35

Western:
With Latch.....doz. \$1.75@1.80
Without Latch.....doz. \$1.75@1.75

Spring Hinges—

Spring Hinges—

Holdback, Cast Iron.....gro. \$6.50@6.75
Non-Holdback, Cast Iron.....gro. \$5.50@5.75

J. Bardsley:
Bardsley's Patent Checking.....15%
Bommer Bros.:
Bommer's.....40%

Chicago Spring Butt Co.:
Chicago.....30%
Garden City Engine House.....30%
Keene's Saloon Door.....30%
Lawson Mfg. Co.:
Match-ss.....25%
Matchless Pivot.....40%

Payson Mfg. Co.:
Oblique, Dbl. Acting.....50@50d@5%

E. C. Stearns & Co.:
Nos. 45 and 51.....70%
Stover Mfg. Co.:
Ideal, No. 16, Detachable, 1/2 gr.\$12.50

Ideal, No. 4.....1/2 gr. \$9.00
New Idea, No. 1.....1/2 gr. \$9.00

New Idea, Double Acting.....45%
Van Wagoner & Williams Hdw Co.:
Acme.....30@5%
American.....30%
Columbia, No. 14.....1/2 gr. \$8.00
Columbia, No. 18.....1/2 gr. \$24.00
Crown.....30%
Gem.....30%
Knoxall.....1/2 gr. \$9.00
Oxford.....30%

Extra 50@10 on most of these Hinges.

Whiffetree—

lb. 53/4

Hooks and Eyes:
Brass.....70d@10@7.5%
Malleable Iron.....75d@10%

Covert Saddlery Works' Self Locking
Gate and Door Hook, 4 in. 1/2 gross
\$13.00; 6 in. \$17.20.....70%

Crown Picture.....60%
Bench Hooks—See Bench Stops.
Corn Hooks—See Knives, Corn.

Horse Nails— See Nails, Horse.

Horseshoes—
See Shoes, Horse.

Hose, Rubber—
Garden Hose, 3/4-inch:

Competition.....ft. 43d@54c
3-ply Standard.....ft. 34d@6c
4-ply Standard.....ft. 63d@6c
3-ply extra.....ft. 63d@7.5c
4-ply extra.....ft. 74d@8.5c

High Grade.....ft. 9d@11c
Cotton Garden, 3/4-in., coupled:

Low Grade.....ft. 54d@6c
Fair quality.....ft. 7d@7c
Good quality.....ft. 8d@8.5c

Extra 10@10 on most of these Hinges.

Irons— Sad—
From 4 to 10.....lb. 2 1/2@2.5c
B. B. Sad Irons.....lb. 2.5c
Chinese Laundry.....lb. 43d@4c
Chinese Sad.....lb. 3 1/2@3c

Mrs. Potts', per set:
Nos. 50.....60.....60
70@7c 65@7c 70@8c 70@7c
New England Pressing.....lb. 3c

Soldering—
Soldering Coppers.....lb. 23d@2c
Covert Mfg. Co.....35d@2c

Pinking—
Pinking Irons.....doz. 50@6c

Jack Screws— See Screws.

Kettles—
Brass, Spun, Plain, list Mar. 15, 1898:

Field and Garden.....60d@6c@5c
Ladies', Boys', Toy and Onion.....75d@12d@2c

Knife Sharpeners—
See Sharpeners, Knife.

Knives—
Butcher, Shoe, &c.—

Dick's Butcher Knives.....40%

Foster Bros' Butcher, &c.....40%

Nichols' Butcher Knives.....50%

Table and Pocket Cutlery and John Wilson's Butcher Knives—Net prices.

Hay and Straw—See Hay Knives.

Corn—
Ft. Madison Cut-Easy, 1/2 gr. doz.\$3.25

Drawing—
Standard List.....75d@75d@10%

Adjustable Handle.....25d@33d@5%

Bradley's.....35%

Swan's.....75d@75d@25d@25%

Watrous.....30d@10d@40%

L. & J. W. White.....20d@5d@25%

Cautelio's Folding.....50d@50d@5%

Hay and Straw—

Blizzard.....85.50@6.00

Iwan's Sickle Edge.....\$10.50@10.50

Lightning, from Jobbers.....\$5.00@6.00

Mincing—
Buffalo Adjustable, 1/2 gr. doz. \$8.00.....40%

Smith's, 1/2 doz., Single, \$2; Double, \$3.....45d@50%

Miscellaneous—
Farriers'.....doz. \$2.00@3.00

Wostenholme's.....1/2 doz. \$3.00@3.25

Knobs—
Base, 2 1/4-inch, Birch, Rubber tip, gro.\$1.20@1.25

Carriage, Jap. all sizes, gro. 27@30c

Door, Mineral.....doz. 62@65c

Door, Por. Jap d.....doz. 75@78c

Door, Por. Nickel.....doz. \$1.70@1.80

Bardsley's Wood Door, Shutter, &c.15%

Picture, Sargent's.....70d@10%

Snow's Victor.....50d@10%

Ladies— Melting—
P. S. & W.35d@10@40%

Reading.....50d@10%

Sargent's.....60d@60d@10%

Lanterns— Tubular—
Regular Tubular.....\$8.00.....40d@50%

Side Lift Tubular.....\$8.50.....40d@50%

Pulleys—

<i>Hay Fork, Sivel or Solid Eye</i>	<i>doz. \$1.50</i>
<i>Hay Fork, Stowell's Anti-Friction, 5-in. Wheel, 3/8 doz. \$12.00</i>	<i>40%</i>
<i>Hay Fork, Stearns' No. 15 & 25</i> $\frac{1}{2}$ doz. \$1.75	
<i>Hay Fork, Stearns' No. 35 & 45</i> $\frac{1}{2}$ doz. \$3.00	
<i>Hay Fork, Stearns' Nos. 56 & 66</i>	<i>\$2.25</i>
<i>Hot House, Awning, &c.</i>	<i>60@60&10%</i>
<i>Japanned Cloth Line</i>	<i>60@60&10%</i>
<i>Japanned Screw</i>	<i>70@10&10%</i>
<i>Japanned Side</i>	<i>70@10&10%</i>
<i>Stowell's Ceiling or End, Anti-Friction 40%</i>	
<i>Stowell's Dumb Walker, Anti-Friction 50%</i>	
<i>Stowell's Electric Light</i>	<i>33&1/2%</i>
<i>Stowell's Side, Anti-Friction</i>	<i>50%</i>
<i>Sash (Auger Mortise):</i>	
<i>Common Sense, 13 in. 3/8 doz. 18¢;</i>	
<i>2 in. 20¢;</i>	
<i>Empire, 13 in. 17¢; 2 in. 19¢</i>	
<i>L. C. 13 in. 15¢; 2 in. 17¢</i>	
<i>Ideal No. 13, 13 in. 20¢ doz. 15¢;</i>	
<i>Improved, 13 in. 17¢; 2 in. 19¢</i>	
<i>Nagara, 13 in. 16¢; 2 in. 17¢</i>	
<i>No. 26, Troy, 13 in. 16¢; 2 in. 17¢</i>	
<i>Star, 13 in. 16¢; 2 in. 17¢</i>	
<i>Acme, 13 in. 18¢; 2 in. 19¢</i>	
<i>Tackle Blocks—See Blocks.</i>	

Pumps—

<i>Cistern</i>	<i>60@5%</i>
<i>Pitcher Spout</i>	<i>75¢</i>
<i>Pump Leathers, all sizes</i>	<i>gro. \$6.00</i>
<i>Flint & Walling's Fast Mail</i>	<i>60@5%</i>
<i>Myer's Pumps, low list</i>	<i>50%</i>
<i>Contractors' Rubber Diaphragm Non-chokable, B. & L. Block Co.</i>	<i>20%</i>

Punches—

<i>Revolving</i>	<i>doz. \$3.50@5.75</i>
<i>Saddlers' or Drive, good</i>	<i>doz. 60@65¢</i>
<i>Spring, good quality</i>	<i>\$1.70@1.80</i>
<i>Bemis & Call Co.'s Cast Steel Drive</i>	<i>50@5%</i>
<i>Bemis & Call Co.'s Check</i>	<i>55¢</i>
<i>Bemis & Call Co.'s Spring</i>	<i>50@5%</i>
<i>Bemis & Call Co.'s Springfield Socket</i>	<i>65¢</i>
<i>Niagara Hollow Punches</i>	<i>45¢</i>
<i>Niagara Solid Punches</i>	<i>55¢</i>
<i>Spring, Leach's Pat.</i>	<i>15¢</i>
<i>Steel Screw, B. & R. Mfg. Co.</i>	<i>50¢</i>
<i>Tinners' Hollow, P. S. & W. Co.</i>	<i>20@25%</i>
<i>Tinners' Solid, P. S. & W. Co., 3/8 doz.</i>	<i>\$1.44.....55¢</i>

Rail—

<i>Barn Door, &c.—</i>	
<i>Barn Door, Light, In. 1/2 5/8 3/4 100 feet</i>	<i>\$1.50 \$1.95 \$2.00</i>
<i>B. D., for N. E. Hangers: Small Med. Large 100 feet</i>	<i>\$1.60 2.00 2.50</i>
<i>Sliding Door, Bronzed Wr' Iron, ft. 61/4</i>	
<i>Sliding Door, Iron Painted, 2 1/4 @ 2 1/4</i>	
<i>Sliding Door, Wrought Brass, 1 1/4 in.</i>	<i>lb. 36¢ .30¢</i>
<i>Cronk's Double Braced Steel Rail, 3/8 foot</i>	<i>38¢</i>
<i>Lanes' O. N. T., 3 ft. 100 ft.</i>	<i>\$2.40</i>
<i>Lanes' Standard, 3 ft.</i>	<i>31/4¢</i>
<i>McKinney's None Better, 3 ft. 24¢</i>	
<i>McKinney's Standard, 3 ft. 31/4¢</i>	
<i>Moore's, Wr't, Bracket, Steel</i>	<i>\$2.40</i>
<i>Stowell's Steel Rail, 3 ft. 34¢</i>	<i>35¢@10%</i>
<i>Terry's Steel Rail</i>	<i>3 ft. 34¢</i>

Rakes—

<i>1896 or old list often used:</i>	
<i>C. S. Rakes</i>	<i>60@10@3%</i>
<i>Malleable Rakes</i>	<i>70@10@5%</i>
<i>Association List:</i>	
<i>Cast Steel</i>	<i>75@5@2%</i>
<i>Malleable</i>	<i>70@10@5%</i>
<i>Fort Madison Red Head Lawn</i>	<i>\$3.00</i>
<i>Fort Madison Blue Head Lawn</i>	<i>\$2.65</i>

Rasp, Horse—

<i>Diss'ons</i>	<i>75¢</i>
<i>New Nicholson Horse Rasp</i>	<i>70@10@5%</i>
<i>See also Files.</i>	

Razor Strops—

<i>See Strops, Razor.</i>	
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Reels—**Fishing—**

<i>Hendryx Aluminum, German Silver, Gold, Bronze, Silver, Rubber, Populo and Salmon, Single Action, Multiplying and Quadruple, all sizes</i>	<i>25¢</i>
<i>Hendryx Single Action Series, 102P and PN, 202P and PN, 102 PR and PRN, 202 PR and PRN, 304 P and PN, 00304P and PN, 50¢ and 502N, 802 and 802N, 02084N, Competitor, 50¢</i>	
<i>Hendryx Multiplying and Quadruple Series, 3004N and PN, 4N and PN, 9904N, 2904P and PN, 002904N, 0924 and 0924N, 5009N and PN</i>	<i>40@10%</i>
<i>Registers—</i>	
<i>For points on Mississippi River and East:</i>	
<i>Black Japanned</i>	<i>40%</i>
<i>White Japanned</i>	<i>30%</i>
<i>Bronzed Finishes</i>	<i>40%</i>
<i>Nickel Plat'd.</i>	<i>40%</i>
<i>Electro Plated in Brass, &c.</i>	<i>40%</i>
<i>White Porcelain</i>	<i>30%</i>
<i>Solid Brass and Bronze Metal</i>	<i>25%</i>
<i>Note.—Higher prices are quoted in territory further West.</i>	

Rings and Ringers—**Bull Rings—**

<i>Steel</i>	<i>\$.90 1.00 1.05 doz.</i>
<i>Copper</i>	<i>1.10 1.20 1.35 doz.</i>

Hog Rings and Ringers—

<i>Hill's Rings, gro. boxes</i>	<i>\$3.25@3.50</i>
<i>Hill's Ringers, G. I.</i>	<i>doz. 50@55¢</i>
<i>Blair's Rings</i>	<i>3/8 gro. \$3.75@4.00</i>
<i>Blair's Ringers</i>	<i>3/8 gro. \$5.50@6.00</i>
<i>Brown's Rings</i>	<i>3/8 gro. \$3.75@4.00</i>
<i>Brown's Ringers</i>	<i>3/8 gro. \$5.50@6.00</i>
<i>Perfect Rings</i>	<i>3/8 gro. \$7.00@7.50</i>
<i>Perfect Ringers</i>	<i>75@80¢</i>

Rivets and Burrs—

<i>Copper</i>	<i>40@10@50¢@5%</i>
<i>Iron or Steel</i>	

<i>Tinners'</i>	<i>60@10@60@10@5%</i>
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<i>Miscellaneous</i>	<i>60@10@60@10@5%</i>
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Rivet Sets—See Sets.**Roasting and Baking Pans—See Pans, Roasting and Baking.****Rollers—**

<i>Acme, Stowell's Anti-Friction</i>	<i>50@10%</i>
<i>Barn Door, Sargent's list</i>	<i>60@10@10@70%</i>
<i>Lane's, Stay</i>	<i>33@45%</i>
<i>Stowell's Barn Door Stay</i>	<i>3/8 doz. \$1.00</i>

Ropes—**Roasting and Baking Pans—See Pans, Roasting and Baking.****Rollers—**

<i>Acme, Stowell's Anti-Friction</i>	<i>50@10%</i>
<i>Barn Door, Sargent's list</i>	<i>60@10@10@70%</i>
<i>Lane's, Stay</i>	<i>33@45%</i>
<i>Stowell's Barn Door Stay</i>	<i>3/8 doz. \$1.00</i>

Ropes, H. & C. —**Ropes, H. & C. —**

Shovels and Tongs—	Tinned Iron doz. \$0.80@1.25	Tapes, Measuring—	India 2-Ply Hemp, 1/4 and 1/2-lb. Balls (Spring Twine) 8c
Brass Head 60¢@10@60¢10¢10%	Iron, Porcelain Lined doz. \$3.25@3.50	American Asses' Skin 40¢@10@50%	India 3-Ply Hemp, 1-lb. Balls 8c
Iron Head 60¢@10@60¢10¢5%	Jennings' Star 1/2-lb. Balls 10¢	Patent Leather 25@25¢10%	India 3-Ply Hemp, 1 1/2-lb. Balls 12 1/2¢
Sieves and Sifters—	Klug 1/2-lb. Balls 2.00	Steel 35¢@40¢10%	2, 3, 4 and 5-Ply Jute, 1/2-lb. Balls 6¢
Hunter's Imitation gro. \$9.00@9.50	Staples—	Chesterman's 25@25¢5%	Mason Line, Linen, 1/2-lb. Balls 4c
Buffalo Metallic, S. S. & Co., 1/2 gr.:	Barbed Blind lb. 8¢@8¢c	Keuffel & Esser Co., Steel and Metallic, new list, 1898 35¢	No. 264 Mattress, 1/4 and 1/2-lb. Balls 3c
14 18@18 18 18@20	Electricians' Association list 80¢@10%	Lufkin's Steel and Metallic 33¢@33¢@5%	Wool 6@5¢c
Blued \$10.80 \$11.40 \$11.40 \$12.00	Fence Staples, same price as Barbed Wire. See Trade Report.		
Tinned 11.40 12.00 12.00 12.60	Poultry Netting lb. 4¢@4¢c		
Ellipse 1/2 gr. \$9.00@9.50			
Hunter's Genuine 1/2 gr. \$10.00@10.50	Steels, Butchers'—		
Shaker (Barler's Pat.) Flour Sifters. 1/2 doz. \$2.00	Grand Crossing Tack Co.'s list 75¢@10%	Tin Case 80¢@10@80¢10¢10%	
Sieves, Wooden Rim—	Dick's 40¢	Ties, Bale—Steel.	
Mesh 18, Nested, doz. \$0.80	Foster Bros. 40¢	Standard Wire 50¢@10¢5%	
Mesh 20, Nested, doz. ..... .90	C. & A. Hoffmann's 40¢		
Mesh 24, Nested, doz. 1.00	Nichols Bros. 50¢		
Sinks—	John Wilson's, list Sept. 1, '94. 25¢		
Cast Iron—	Steelyards—		
Low list 65@65¢5%	40@40¢10%	Cleveland, Steel. 1/2-lb. Balls 10¢	
Note.—The low list is now generally used, but some jobbers use high list.	Stocks and Dies—		
Wrought Steel—	Blacksmiths' 35¢@40¢	Tinners' Shears, &c.—	
Columbus Galv'd and Enamelled. 50&10%	Gardner 40@10%	See Shears, Tinners', &c.	
Columbus, Painted. 30@10%	G-son River 25¢	Tinware—	
L. & G. 55&10%	Lightning Screw Plate 25¢	Stamped, Japanned and Plated, sold very generally at net prices.	
Skeins, Wagon—	Little Giant 25¢	Tire Benders, Upsetters, &c.—	
Malleable Iron 75@75¢10%	Reece's New Screw Plates 20¢@30¢	See Benders and Upsetters, Tire.	
Steel 45@45¢5%	Reversible Hatchet 25¢	Tobacco Cutters—	
I. L. S. & Co., Steel. 45¢	Stone—	See Cutters, Tobacco.	
Slates—	Scythe Stones—		
"D" Slates 50¢@10@50¢10¢10%	Pike Mfg. Co., list '95-'96 33¢@		
Unexcelled Noiseless Slates. 60¢@6¢ tens@60¢6¢ tens@5%	Cleveland Stone Co., list Nov. '92. 33¢@	Tools—	
Wire Bound 60¢@10@50¢	Oil Stones, &c.—		
Double Slates, add \$1 case, net.	L. & I. J. White 20@20&5%	Coopers'—	
Saw Cutters —See Cutters.	Saw—		
Snaps, Harness—	Atkins' new list 40¢		
German 50@50¢5%	Simonds' 33¢@	Transom Lifters—	
Covet Mfg. Co.:	Transom Lifters—	See Lifters, Transom.	
Perky 45@2%	Traps—Game—		
High Grade 45@2%	Stoners—		
Jockey 45@2%	Cherry—		
Trojan 45@2%	Enterprise 25@30¢		
Covet's Saddlery Works:	Stops, Bench—		
Banner 75¢	Millers Falls 15@10%		
Crown 70¢	Morrill's, 1/2-lb. doz. No. 1, \$10.00; No. 2, \$11.00, 40@20¢		
Triumph 70¢	Stearns' 30@20¢	Mouse and Rat—	
W. & E. T. Fitch:	Stops, Window—		
Bristol 40@10%	Taplin's 25@25¢	Mouse, Wood, Choker, doz. holes 8@9¢	
Empire 50@5%	Stove Boards—		
National 50@5%	See Boards, Stove.		
Clipper 50@10¢5%	Stove Polish—		
Champion 40@10%	See Polish, Stove.		
Victor 60@5%	Straps, Box—		
Ore on Community:	Cary's Universal 20@10@10%		
So'd Steel 65@65@10%	Stretchers, Carpet—		
So'l Sw vol. 5@1 @9@5@1@10%	Cast Iron, Steel Points doz. 70@75¢		
Sargent's Patent Guarded. 70@10@70@10%	Cast Steel, Polished doz. 82.25		
Snaths—	Socket doz. \$1.75		
Scythe 55¢	Stuffers, Sausage—		
Snips, Tinnings'—	Miles' Challenge, 1/2-lb. doz. \$20. 50@50¢5%		
See Irons, Soldering.	Enterprise Mfg. Co., list Jan. 17, '93. 25@25¢75¢		
Spoke Trimmers—	National Specialty Mfg. Co., list Jan. 1, '97. 25¢		
See Trimmers, Spoke.	Tacks, Brads, &c.—		
Spoons and Forks—	List Jan. 15, '99.		
Silver Plated—	Carpet Tacks:		
Flat Ware 50¢@10@60¢10%	American Blued 90¢@20@90¢25¢		
Wm. Rogers Mfg. Co. 50@10%	American Tinned 90¢@20@90¢25¢		
Springs—	American Cut Tacks 90¢@10@90¢10¢5%		
Door—	Swedes Iron Tacks 90¢@10@90¢10¢5%		
Gen (Coll) 20¢	Upholsterers Tacks 90¢@5@90¢10¢5%		
Star (Coll) 30¢	Gimp Tacks 90¢@5@90¢10¢5%		
Torrey's Rod, 39 in. 1/2-lb. doz. \$1.10@1.25	Lace Tacks 85¢@20@85¢10¢5%		
Warner's No. 1, 1/2-lb. doz. \$1.50@1.50	Trimmers' Tacks 30¢@10@90¢20¢		
Victor (Coll) 90@10@60@10@5%	Looking Glass Tacks 70@70¢10¢		
Carriage, Wagon, &c.	Bill Posters' and Railroad Tack. 90¢@25@90¢35¢		
1 1/2 in. and wider. Blk. Hf Brt. Brt. Tested and Temp. 5 5 1/4 5 1/2 lb Oil Tested and Tempered. 6 6 1/4 6 1/2 lb Cliff Bolster Springs. 40@24¢ Cliff's Seat Springs. 1/2 pair 48¢			
Sprinklers, Lawn—	Tubs, Wash—		
Enterprise 25@30¢	No. 1 2 3		
Philadelphia No. 1, 1/2-lb. doz. \$12; No. 2, \$15; No. 3, \$24. 35¢	Galvanized. 1/2-lb. doz. 85.25 6.0 6.75		
Squares—	Galvanized S. S. & Co., with Wringer Attachment. 1/2-lb. doz. No. 10, \$6.35; No. 20, \$6.75; No. 30. 87.50		
Nickel plated. 1/2 in. List May 1, '95.	Twine—		
Steel and Iron. 1/2 in. 10¢@10¢10¢10%	Common and Patent Brads. 75¢@75¢6¢		
Rosewood Hdl. Try Square and T-Bevels. 90¢@10@10@70¢	Blued 80¢@30¢10¢		
Iron Hdl. Try Squares and T-Bevels. 10¢@10@40¢10¢10%	Tinned 80¢@30¢10¢		
Diston's Try Sq. and T-Bevels. 60@10¢			
Wluterbottom's Try and Miter. 50@10¢	Miscellaneous—		
Squeezers—	Double Point Tacks 90¢@5@10¢		
Lemon—	Steel Wire Brads. R. & E. Mfg. Co.'s list. 50@10¢10¢		
Wood, Common, gro. No. 0. \$5.00; No. 1, \$6.50; No. 2, \$8.00.	See also Nails, Wire.		
Wood, Porcelain Lined:	Tanks, Oil—		
Cheap doz. \$2.50@2.75	Emerald, S. S. & Co. 30-gal. \$3.00		
Good Grade doz. \$3.00@3.50	Emerald, S. S. & Co. 60-gal. \$3.75		
Tins—	QueenCity S. S. & Co. 60-gal. each \$1.00; 100-gal. \$2.25; 120-gal. \$3.50; 200-gal. \$4.00; 250-gal. \$4.00		
Double Point Tacks 90¢@5@10¢	Taps, Measuring—		
Steel Wire Brads. R. & E. Mfg. Co.'s list. 50@10¢10¢	American Asses' Skin 40¢@10@50%		
Diston's Try Sq. and T-Bevels. 60@10¢	Patent Leather 25@25¢10%		
Wluterbottom's Try and Miter. 50@10¢	Steel 35¢@40¢10%		
Squeezers—	Chesterman's 25@25¢5%		
Lemon—			
Wood, Common, gro. No. 0. \$5.00; No. 1, \$6.50; No. 2, \$8.00.			
Wood, Porcelain Lined:			
Cheap doz. \$2.50@2.75			
Good Grade doz. \$3.00@3.50			
Tins—			
Double Point Tacks 90¢@5@10¢			
Steel Wire Brads. R. & E. Mfg. Co.'s list. 50@10¢10¢			
Diston's Try Sq. and T-Bevels. 60@10¢			
Wluterbottom's Try and Miter. 50@10¢			
Tins—			
Double Point Tacks 90¢@5@10¢			
Steel Wire Brads. R. & E. Mfg. Co.'s list. 50@10¢10¢			
Diston's Try Sq. and T-Bevels. 60@10¢			
Wluterbottom's Try and Miter. 50@10¢			
Tins—			
Double Point Tacks 90¢@5@10¢			
Steel Wire Brads. R. & E. Mfg. Co.'s list. 50@10¢10¢			
Diston's Try Sq. and T-Bevels. 60@10¢			
Wluterbottom's Try and Miter. 50@10¢			
Tins—			
Double Point Tacks 90¢@5@10¢			
Steel Wire Brads. R. & E. Mfg. Co.'s list. 50@10¢10¢			
Diston's Try Sq. and T-Bevels. 60@10¢			
Wluterbottom's Try and Miter. 50@10¢			
Tins—			
Double Point Tacks 90¢@5@10¢			
Steel Wire Brads. R. & E. Mfg. Co.'s list. 50@10¢10¢			
Diston's Try Sq. and T-Bevels. 60@10¢			
Wluterbottom's Try and Miter. 50@10¢			
Tins—			
Double Point Tacks 90¢@5@10¢			
Steel Wire Brads. R. & E. Mfg. Co.'s list. 50@10¢10¢			
Diston's Try Sq. and T-Bevels. 60@10¢			
Wluterbottom's Try and Miter. 50@10¢			
Tins—			
Double Point Tacks 90¢@5@10¢			
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Diston's Try Sq. and T-Bevels. 60@10¢			
Wluterbottom's Try and Miter. 50@10¢			
Tins—			
Double Point Tacks 90¢@5@10¢			
Steel Wire Brads. R. & E. Mfg. Co.'s list. 50@10¢10¢			
Diston's Try Sq. and T-Bevels. 60@10¢			
Wluterbottom's Try and Miter. 50@10¢			
Tins—			
Double Point Tacks 90¢@5@10¢			
Steel Wire Brads. R. & E. Mfg. Co.'s list. 50@10¢10¢			
Diston's Try Sq. and T-Bevels. 60@10¢			
Wluterbottom's Try and Miter. 50@10¢			
Tins—			
Double Point Tacks 90¢@5@10¢			
Steel Wire Brads. R. & E. Mfg. Co.'s list. 50@10¢10¢			
Diston's Try Sq. and T-Bevels. 60@10¢			
Wluterbottom's Try and Miter. 50@10¢			
Tins—			
Double Point Tacks 90¢@5@10¢			
Steel Wire Brads. R. & E. Mfg. Co.'s list. 50@10¢10¢			
Diston's Try Sq. and T-Bevels. 60@10¢			
Wluterbottom's Try and Miter. 50@10¢			
Tins—			
Double Point Tacks 90¢@5@10¢			
Steel Wire Brads. R. & E. Mfg. Co.'s list. 50@10¢10¢			
Diston's Try Sq. and T-Bevels. 60@10¢			
Wluterbottom's Try and Miter. 50@10¢			
Tins—			
Double Point Tacks 90¢@5@10¢			
Steel Wire Brads. R. & E. Mfg. Co.'s list. 50@10¢10¢			
Diston's Try Sq. and T-Bevels. 60@10¢			
Wluterbottom's Try and Miter. 50@10¢			
Tins—			
Double Point Tacks 90¢@5@10¢			
Steel Wire Brads. R. & E. Mfg. Co.'s list. 50@10¢10¢			
Diston's Try Sq. and T-Bevels. 60@10¢			
Wluterbottom's Try and Miter. 50@10¢			
Tins—			
Double Point Tacks 90¢@5@10¢			
Steel Wire Brads. R. & E. Mfg. Co.'s list. 50@10¢10¢			
Diston's Try Sq. and T-Bevels. 60@10¢			
Wluterbottom's Try and Miter. 50@10¢			
Tins—			
Double Point Tacks 90¢@5@10¢			
Steel Wire Brads. R. & E. Mfg. Co.'s list. 50@10¢10¢			
Diston's Try Sq. and T-Bevels. 60@10¢			
Wluterbottom's Try and Miter. 50@10¢			
Tins—			
Double Point Tacks 90¢@5@10¢			
Steel Wire Brads. R. & E. Mfg. Co.'s list. 50@10¢10¢			
Diston's Try Sq. and T-Bevels. 60@10¢			
Wluterbottom's Try and Miter. 50@10¢			
Tins—			
Double Point Tacks 90¢@5@10¢			
Steel Wire Brads. R. & E. Mfg. Co.'s list. 50@10¢10¢			
Diston's Try Sq. and T-Bevels. 60@10¢			
Wluterbottom's Try and Miter. 50@10¢			
Tins—			
Double Point Tacks 90¢@5@10¢			
Steel Wire Brads. R. & E. Mfg. Co.'s list. 50@10¢10¢			
Diston's Try Sq. and T-Bevels. 60@10¢			
Wluterbottom's Try and Miter. 50@10¢			
Tins—			
Double Point Tacks 90¢@5@10¢			
Steel Wire Brads. R. & E. Mfg. Co.'s list. 50@10¢10¢			
Diston's Try Sq. and T-Bevels. 60@10¢			
Wluterbottom's Try and Miter. 50@10¢			
Tins—			
Double Point Tacks 90¢@5@10¢			
Steel Wire Brads. R. & E. Mfg. Co.'s list. 50@10¢10¢			
Diston's Try Sq. and T-Bevels. 60@10¢			
Wluterbottom's Try and Miter. 50@10¢			
Tins—			
Double Point Tacks 90¢@5@10¢			
Steel Wire Brads. R. & E. Mfg. Co.'s list. 50@10¢10¢			

CURRENT METAL PRICES.

JULY 19, 1899.

The following quotations are for small lots. Wholesale prices, at which large lots only can be bought, are given elsewhere in our weekly market report.

IRON AND STEEL-

Bar Iron from Store-

Common Iron: Duty, Round, 0.6¢ per lb.; Square, 0.8¢ per lb.
1 to 1½ in. round and square. 2.15¢ per lb.
1½ to 4 in. x ¾ to 1 in. 2.20¢ per lb.
4 in. to 4 in. x ¾ to 1 in. 2.35¢ per lb.
4 in. to 4 in. x ¾ to 6-16. 2.45¢ per lb.
Rods—½ and 1½ round and sq're. 2.50¢ per lb.
Ang's: 3 in. x ¾ in. and larger. 2.85¢ per lb.
1½ to 2½ in. x ¾ in. and heavier. 2.45¢ per lb.
1 to 3 in. x 3-16 in. 2.55¢ per lb.
1 to 3 in. x ¾ in. 2.65¢ per lb.
Tees: 1 in. 2.75¢ per lb.
1½ to 2½ in. 2.55¢ per lb.
3 in. and larger. 2.45¢ per lb.
Beams. 2.75¢ per lb.
Chains. 2.75¢ per lb.
Bands—1 to 6 x 8-16 to No. 12. 2.70¢ per lb.
"Burden's Best" Iron, base price. 2.80¢ per lb.
Burden's "H. B. & S." Iron, base price. 2.80¢ per lb.
"Ulster" 3.00¢ per lb.
Norway Bars. 3.50¢ per lb.
Norway Shapes. 4.00¢ per lb.

Merchant Steel from Store-

Open Hearth and Bessemer Machinery	2.50 to 2.60¢ per lb.
Tee Calk, Tire and Sleigh Shoe	2½ to 3¢ per lb.
Best Cast Steel, base price in small lots.	7¢ per lb.
Best Cast Steel Machinery, base price in small lots.	5¢ per lb.

Soft Steel Sheets-

14 inch. 2.90¢ per lb.	No. 14. 9.15¢ per lb.
8-16 inch. 8.00¢ per lb.	No. 16. 8.25¢ per lb.
No. 8. 8.05¢ per lb.	No. 18. 8.30¢ per lb.
No. 10. 8.05¢ per lb.	No. 20. 8.35¢ per lb.
No. 12. 8.10¢ per lb.	No. 22. 8.40¢ per lb.

Sheet Iron from Store.

Black.

Common American.	R. G. Cleaned American.
2.80¢ per lb.	3.00¢ per lb.
3.10¢ per lb.	3.30¢ per lb.
3.20¢ per lb.	3.40¢ per lb.
3.30¢ per lb.	3.50¢ per lb.
3.40¢ per lb.	3.60¢ per lb.
3.50¢ per lb.	3.70¢ per lb.

Russia, Planished, &c.

Genuine Russ. a, according to assortment.	10½¢ per lb.
Patent Planished.	2.10¢ per lb.
Patent Planished Sheet Steel.	2.10¢ per lb.

Galvanized.

Nos. 10 to 16. 12¢ per lb.
Nos. 17 to 21. 13¢ per lb.
Nos. 22 to 24. 14¢ per lb.
Nos. 25 and 26. 15¢ per lb.
No. 27. 16¢ per lb.
No. 28. 17¢ per lb.
86 in. 18¢ per lb. higher.

Foreign Steel from Store-

Best Cast. 14¢ per lb.
Extra Cast. 16¢ per lb.
Swaged, Cast. 16¢ per lb.
Best Double Shear. 16¢ per lb.
Blister, 1st quality. 12¢ per lb.
German Steel, Best. 10¢ per lb.
2d quality. 9¢ per lb.
3d quality. 8¢ per lb.
Sheet Cast Steel, 1st quality. 14¢ per lb.
2d quality. 13¢ per lb.
3d quality. 11¢ per lb.
R. Mushet's "Special". 4¢ per lb.
" " " " " Annealed. 2.75¢ per lb.
" " " " " Titanic". 2.75¢ per lb.
Hobson's Choice XX Extra Best. 35¢ per lb.
Jessop Self Hardening. 40¢ per lb.
Seamans' "Nelson" Steel. 40¢ per lb.
Hobson Self Hardening. 40¢ per lb.

METALS-

Tin-

Duty—Pigs, Bars and Block. Free.	Per lb.
Banca, Pigs. 31¢ per lb.	
Straits, Pigs. 30¢ per lb.	
Straits Bars. 31¢ per lb.	

Tin Plates-

American Charcoal Plates.

Calland Grade:	
IC. 14 x 20. 6.50¢ per lb.	
IX. 14 x 20. 7.50¢ per lb.	
Allaway Grade:	
IC. 14 x 20. 5.50¢ per lb.	
IX. 14 x 20. 6.50¢ per lb.	

American Coke Plates—Bessemer—

IC. 14 x 20. 108 lb.	4.90¢ per lb.
IX. 14 x 20. 5.80¢ per lb.	
IXX. 14 x 20. 6.45¢ per lb.	

American Terne Plates—

IC. 20 x 28. 8.50¢ per lb.
IX. 20 x 28. 11.50¢ per lb.

Tin Boiler Plates, American—

XXX. 14 x 26. 112 sheets.	\$11.00
XXX. 14 x 28. 112 sheets.	11.05
XXX. 14 x 31. 112 sheets.	11.05

Copper—

Duty: Pig, Bar and Ingot and Old Copper free Manufactured, 2½¢ per lb.	
Ingot—	

Lake.	10¢ per lb.
America grade Casting.	18¢ per lb.

Sheet and Bolt—

February 2, 1899.

Prices, in cents per pound.

Sheet 30 x 60.

Net.

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